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MR. PRESIDENT AND GENTLEMEN,—During the past ten years a vivid scientific light has been focussed on the pituitary gland, and our knowledge of its functions in health and deviations in disease has been greatly increased. The physician and neurologist have found that increase or diminution of glandular function leads to recognisable clinical symptoms, whilst general surgeons and rhinologists have been asked to operate for such conditions of the gland which lead to those symptoms and are amenable to surgical treatments. Yet in spite of the excellent work done no general agreement has yet been attained as to the best route of surgical approach. The present study aims at supplying some facts which may help to determine the best surgical procedure.

COMPARATIVE MORPHOLOGY AND DEVELOPMENT IN MAN.

A pituitary body is present in all vertebrates, but in the lower types the protection afforded by the skeleton is not so specialised as in mammals. In fishes with a persistent cartilaginous skull-base a shallow depression for the gland can be seen. In the lower reptiles towards the anterior end of the bony floor of the skull there is a small depression overhung by a ridge of bone which corresponds to the dorsum sellæ of higher vertebrates. When we examine such well-developed skulls as those of the higher reptiles (alligator or tortoise) we find a well-protected deep excavation in the body of the sphenoid. Birds have a small and insignificant fossa, but the majority of mammalian skulls show a well-marked depression which is built more after the pattern of the higher reptiles.

The pituitary fossa is formed at a nodal point in the base of the skull between the trabeculæ cranii in front and the notochord and parachordal cartilages (basal plate) behind. It is situated just behind and above the nasal capsule, and varies in shape and position according to the relations which the facial skeleton bears to the cranium. A study of the higher vertebrates' skull shows that it is a function of the basi- or post-sphenoid to form the pituitary fossa. This can be seen best in those animals which have no sphenoidal sinus such as the sheep or seal. In animals with well-developed sphenoidal sinuses, for example the pig, or in which the facial skeleton is placed more under the forebrain, the pre-sphenoid may form a small portion of the anterior wall of the fossa (e.g., the chimpanzee).

In the human embryo the fossa is formed in cartilage at a very early stage. In a reconstruction model, which by Professor J. E. S. Frazer's kindness I was able to make, of an embryo of 28 mm., a recess with a well-marked posterior wall can be observed at the anterior extremity of the basal plate. This posterior wall, which is the future dorsum sellæ, is made up of cartilage and membrane. At this time there is no anterior wall to the fossa and the condition is more akin to that found in the lower reptiles. The anterior boundary of the fossa apparently is elevated by the upgrowth of the facial skeleton and thus the normal shape of the fossa is completed. Bony nuclei are laid down in the cartilage of the post-sphenoid region around the fossa at about the eighth week of fœtal life. The nucleus of the basi-sphenoid forms the base of the fossa, and the pre-sphenoid bony deposit does not at first form one of its boundaries. At birth the fossa can be seen surmounting the basi- and part of the pre-sphenoid, and the cartilage between the two can be seen stretching from the naso-pharynx to the antero-inferior part of the sella. At this time the clinoids and the dorsum sellæ are not ossified fully.

The cranio-pharyngeal canal, which represents the route along which the pharyngeal portion of the pituitary gland enters the skull to meet its nervous counterpart, is generally closed long before birth, but may persist longer. This canal traverses the anterior part of the post-sphenoid and does not lie between the pre- and post-sphenoid as is generally stated. A comparative study of mammalian skulls made me regard the current statement as incorrect, and actual examination of fœtal skulls soon showed the remnants of the canal in the basi-sphenoid.

After birth the fossa grows gradually as the contained gland and the skull base develop. A series of radiographic photographs of the sellæ of children of average size from 6 to 14 years shows that there is normally great variation in size, and that one cannot say that there is any particular age at which any special increase in size occurs.

NORMAL ANATOMY OF THE PITUITARY FOSSA.

The pituitary fossa or sella turcica forms the narrow median segment of the middle cranial fossa. It lies at the centre of the cranial base and is almost equidistant from the root of the nose and the posterior margin of the foramen magnum. A large number of basal fractures tear across the floor of the sella, and it may be that some of those deaths from fractured base unaccompanied by any grave hæmorrhage or cerebral laceration are the result of severe injury to the pituitary gland lying close to the site of fracture.

The shape of the fossa in sagittal section is like a U with the opening inclined slightly forwards. This shape is masked on a lateral view by the projecting anterior clinoid process. In many dried skulls the exact shape is not so readily determined owing to the breaking away of the dorsum sellæ, which forms the posterior limit of the U. The floor is slightly concave and is formed by the upper surface of the body of the sphenoid. It is limited laterally by a rounded ridge, just external to which is the groove which the internal carotid artery makes on the side of the sphenoidal body. Sometimes the carotid groove is lifted up by the subjacent sphenoidal sinuses and lies almost on a level with the floor of the sella. The anterior sloping surface leads up to the tuberculum sellæ, just below which is sometimes seen a transverse ridge for attachment of the diaphragma sellæ. In front of the tuberculum lies the optic groove which does *not* lodge the optic chiasma. The optic foramina are at the lateral extremities of the optic groove and lie about 1 cm. apart.

Occasionally the optic groove is replaced by a smooth, bulging, convex surface, whilst at other times it is represented by a horizontal niche in the

anterior wall of the fossa. In the latter case the limbus overhangs the fossa and increases its depth. Such an arrangement might cause increased difficulty in approaching by the frontal route.

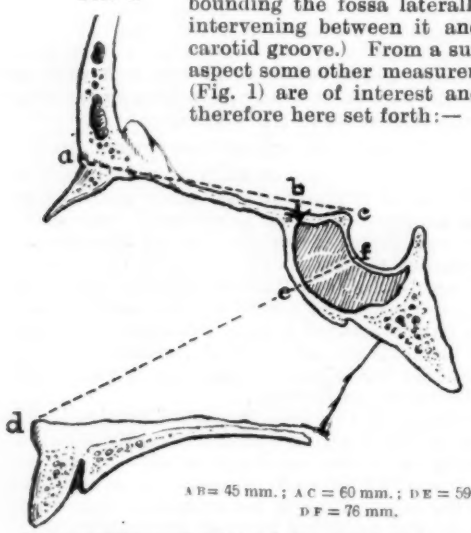
The three clinoid processes are not equally important. The anterior usually projects well back and sometimes fuses with the posterior, which, as a rule, does not extend far forward from the lateral part of the dorsum sellæ. The middle clinoid process is situated laterally to the tuberculum sellæ and is not constant. Sometimes it joins with the anterior clinoid to form a bony foramen for the internal carotid.

The size of the normal pituitary fossa varies considerably. In a series of measurements made upon over 50 skulls from this museum, the South Kensington Museum, and St. Mary's Hospital Medical School the average dimensions were ascertained.

	Varied from	Average.
Antero-posterior measurement	7 to 14 mm.	10·94 mm.
Transverse ,,	9 ,, 15 ,,	11·02 ,,
Depth ,,	3 ,, 10 ,,	5·82 ,,

In rough measurements the fossa is 11 mm. long and broad, and 6 mm. deep. (The antero-posterior measurement was the maximum horizontal measurement of the fossa in each case. The transverse points on which the callipers were fixed were the prominences bounding the fossa laterally and intervening between it and the carotid groove.) From a surgical aspect some other measurements (Fig. 1) are of interest and are therefore here set forth:—

FIG. 1.



A B = 45 mm.; A C = 60 mm.; D E = 59 mm.; D F = 76 mm.

From anterior nasal spine to nearest point of sphenoidal sinus	59·28 mm.
From anterior nasal spine to nearest point of pituitary fossa	76·19 mm.
From root of nose to antero-superior angle of sphenoidal sinus	45·11 mm.
From root of nose to anterior margin of the pituitary fossa	60·1 mm.

These measurements agree within 2 or 3 mm. with those published by Stanley Gibson. There does not seem to be any definite relationship between the size and shape of the skull and those of the pituitary fossa. The distance from the temporal fossa to the sella turcica was not noted in many of the skulls, but it is less than the distance from the nasion, and averages about 50 mm.

The sella is lined by dura mater and is roofed in by the diaphragma sellæ, so that the gland is hemmed in by a cuboidal box, three sides of which are bone and three sides fibrous. The dura is firmly attached to the anterior and posterior clinoids, but fortunately for surgeons it can more easily be stripped up from the floor of the fossa and from the region of the optic groove. The lateral aspects of the fossa are closed in by the cavernous sinuses, through which travel the internal carotid arteries and the third, fourth, and sixth cranial nerves, and ophthalmic division of the fifth nerve.

The diaphragma sellæ is attached not to the top of the dorsum but along a line just below the thickened upper margin; anteriorly it is attached just below the tuberculum sellæ. The diaphragm is strong near its attachments to the bone, but becomes thin and weak as it approaches the central opening through which the pituitary stalk issues; sometimes it is a very feebly marked structure.

Relations to Sphenoidal Sinuses.

The relations of the fossa to the sphenoidal sinuses at different ages need to be considered in detail. The sphenoidal sinus is very small during the first few years of life and is limited to the anterior part of that section of the bone formed from the pre-sphenoid. Somewhere between the seventh to the fourteenth years the sinus enlarges until the whole of the pre-sphenoid area is excavated. The process may stop at this stage and many adult skulls show this arrangement. Since the pituitary fossa is formed in the post-sphenoid, the sphenoidal sinus in these cases does not come into close relationship with the fossa. In the majority of cases, however, the excavation proceeds back into the basi-sphenoid, but the barrier between the pre- and post-sphenoidal segments is frequently indicated by a partial septum or ridge clearly visible inside the sinus. This septum or ridge is attached to the antero-inferior aspect of the sella turcica, and in view of its frequent occurrence is worthy to be called the *trans-sphenoidal crest* or *septum*.

In the pig, whose sphenoidal sinuses are well developed, there is a synarthrodial joint between the pre- and post-sphenoid, but the backward growing air-sinus bursts through this joint to one or other side of the mid-line and proceeds to excavate the post-sphenoid. This process may occur in such a way that the whole basi-sphenoid is hollowed out by a prolongation of one sinus; in such a case the opposite sinus is small and almost confined to the pre-sphenoid.

FIG. 2.

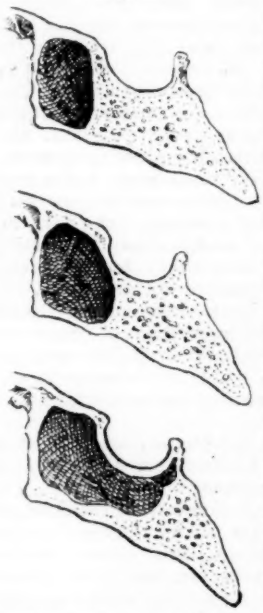
Showing trans-sphenoidal crest and carotid buttress.

Many indications of a similar process are to be observed in human skulls, and it is possible that many of the curiously and markedly deviated sphenoidal septa consist of two parts: a median inter-sphenoidal portion and a trans-sphenoidal element. For example, in a skull examined in the

South Kensington Museum the pre-sphenoidal part of the septum is median, whilst the post-sphenoidal portion deviates to the left, a condition explained by the absorption of the right half of the trans-sphenoidal and the posterior portion of the median septum. Traces of the lateral portions of the trans-sphenoidal septum can be seen frequently in the form of a vertical or oblique bony buttress attached opposite the carotid groove. This process might well be called the *carotid buttress*. (Fig. 2.)

In quite a large number of cases the excavation of the sphenoid is so complete as to absorb totally the cancellous tissue and leave no trace of trans-sphenoidal crest or septum; there is then a scaphoid-shaped sinus into the roof of which the sella turcica bulges. The varying relation of the pituitary fossa to the sphenoidal sinus is shown in the accompanying diagrams. (Fig. 3.)

FIG. 3.



Showing varying relation of sphenoidal sinus to pituitary fossa.

It will be seen that the pituitary fossa often causes no bulge into the pre-sphenoidal type of sinus, and, if it does, it is in the postero-superior angle of the sinus; whilst in the post-sphenoidal type the bulge is always present, but is on the roof of the sinus. Any attempts to open up the postero-superior wall of the latter type would cause injury to the clivus, and exposure of the crura cerebri.

The relationship of the median inter-sphenoidal septum to the fossa is not constant. Its posterior attachment is frequently to one side of the middle line, so that a surgeon taking it for his guide might open into the cavernous sinus. This fact renders the frequent bulge of the internal carotid artery into the sinus of greater significance, though it is certainly unlikely that such a bulge would be mistaken for the sella.

The sphenoidal sinus nearly always reaches up immediately in front of the fossa to the optic groove and jugum sphenoidale, thus lying immediately underneath the posterior part of the floor of the anterior cranial fossa. In some cases, indeed, the optic nerves form a well-marked bulge into the sinus, and there may, in fact, be a supra-optic recess. Occasionally the posterior ethmoidal cell insinuates itself above the sphenoidal sinus and comes into relationship with the anterior part of the sella turcica, a condition which has occasionally caused surgeons to miss the direct way to the sella.

In rare cases the sphenoidal sinuses remain rudimentary, and then a thick portion of cancellous tissue will intervene between the nasal fossa and the sella turcica.

Base of the Brain.

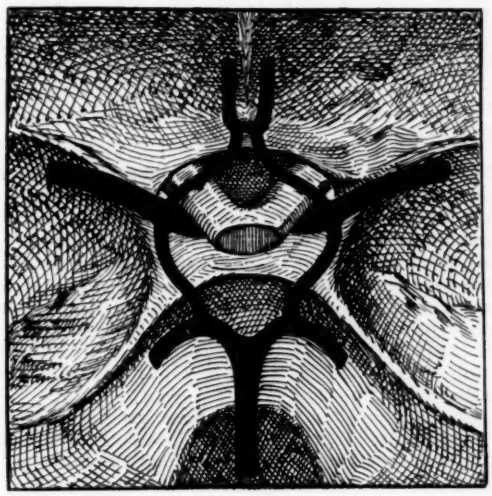
Above the tentorium sellæ lies the large sub-arachnoid space (cisterna basalis), which separates the structures in the interpeduncular space from the base of the skull. Through this gap, which is filled with cerebro-spinal fluid, the stalk of the pituitary courses backwards and upwards to reach the floor of the third ventricle, which lies well above the fossa.

The optic chiasma lies slightly behind the sella turcica at a height of about 1 cm. above the diaphragma sellæ. As the optic nerves diverge from the chiasm to reach the optic foramina they cross the roof of the fossa, leaving a triangular gap between them and the anterior wall of the fossa through which the anterior part of the pituitary body is visible. A gap of 10 mm. separates the optic nerves as they enter the orbits. For any pressure or traction to be exerted on the optic chiasma by a tumour growing from the sella the growth would have to protrude well out of the fossa. Theoretically one would expect the anterior aspect of the chiasm to be the first part to suffer pressure from an up-growing pituitary tumour.

Close behind the posterior aspect of the dorsum sellæ and the clivus are the crura cerebri; tumours breaking the bounds of the fossa would soon press against these structures. The clivus is frequently separated from the sphenoidal sinuses by the merest shell of bone; indeed, specimens are to be found in which part of this shell of bone was wanting and a direct connexion existed between the sphenoidal sinus and the posterior fossa of the skull.

The vascular relations of the fossa are simple but important. It is surrounded by a venous and

FIG. 4.



Showing the relations of the circle of Willis to the base of the skull and the pituitary fossa. The optic chiasma is shown cut across.

surmounted by an arterial circle. The venous circle is formed by the two cavernous and the anterior and posterior inter-cavernous sinuses. (On at least one occasion the anterior inter-cavernous sinus has been reported as enlarged in a case of hypophyseal tumour.) The sinuous way in which the internal carotid courses through the cavernous sinus is well known; just above the fossa it breaks up into the anterior and middle cerebral, which take part in the formation of the circle of Willis. That arterial circle thus surrounds the upper aperture of the fossa, and its exact relations can be judged by a glance at the illustration which is diagrammatically made from a specimen in this Museum. (Fig. 4.) One can readily see how any pituitary growth ascending

from the fossa would enter the arterial circle and would be embraced more tightly in proportion as it increased in size. Moreover, it will be observed that the optic nerves lie beneath the anterior part of the circle, so that as the optic chiasma is pushed up by a tumour the optic nerves will gradually be dragged on and strangled between the neoplasm and the arteries. Post-mortem accounts confirm this occurrence and show that the circle of arteries may clasp the tumour just as would a piece of string tied tightly round it.

PATHOLOGICAL ANATOMY.

The bony and dural limits of the fossa offer considerable resistance to any increase in size of the gland, so that any alteration in contour is of significance. Any marked deviation from the normal can readily be detected in the living subject by the X rays. The abnormal fossæ may be classed in three groups: (1) Enlarged sellæ with contour not deformed; (2) sellæ smaller than usual; and (3) deformed sellæ.

1. *Enlarged sellæ.*—Enlargement may be due to adenomatous overgrowth of the anterior part of the gland, to malignant neoplasm originating in the fossa, and possibly to repeated physiological enlargement due to increased functional activity.

Many cases of acromegaly furnish fossa of this type in which all the diameters are enlarged. Fearnsides identifies with acromegaly a special type of fossa having an anterior and posterior bulge. Though this form is not constant in the disease its occurrence is interesting since the spot where the fossa does not so readily atrophy and enlarge corresponds to the site of the trans-sphenoidal crest—i.e., the strongest part in the floor of the sella. A marked thinning of the bony walls usually occurs, and in dried specimens the thinned dorsum sellæ is generally missing.

The inter-relation between the thyroid and the pituitary is suggested by the undoubted enlargement of the sella in cases of cretinism. Again, in that curious disease achondroplasia the sella is sometimes considerably enlarged in a symmetrical manner, and the fact that in such patients the skull base is prematurely ossified adds significance. In view of the skeletal changes commonly associated with pituitary derangement it is interesting to note that in osteitis deformans there is no enlargement of the sella, but only a thickening of the clinoid processes.

There are other less common causes of sellar enlargement. Hirsch states "that demonstrable enlargement of the sella ..... can be caused by other processes such as general or localised hydrocephalus, chronic circumscribed meningitis, and tumours of other parts of the brain." One case under my care had the fossa enlarged in consequence of chronic syphilitic meningitis.

2. *Sellæ smaller than usual.*—Very small fossæ are seen in connexion with those cases of hypopituitarism associated with imperfect development of the gland. In some cases of so-called idiopathic epilepsy the fossa is smaller than normal and accompanied by a marked approximation of the clinoid processes (Castellain).

3. *Deformed sellæ.*—The fossa may be deformed (*a*) by tumours bursting from within, or (*b*) by interpeduncular neoplasms pressing down from above.

(*a*) Exactly the nature of the deformation probably depends considerably on the rate of growth of the neoplasm. A slowly growing tumour would be more likely to cause a thinning of the walls of the fossa and a gradual stretching of the diaphragma sellæ; a rapidly growing tumour would more probably burst through the dural covering before much erosion of the fossa walls had occurred. The first part of the surrounding walls to give way is almost always the dural roof, which has a weak central portion which the pituitary stalk traverses. Calling to mind the usual shape of the fossa it will be seen that the tumour will advance upward and forward, and the first supra-sellar projection will be *in front of the optic chiasma*. In this way pressure may first be exerted on the anterior fibres of the chiasm. When once escaped from the fossa a neoplasm would direct itself along the line of least resistance backward into the interpeduncular space, and later it would invade the third ventricle or frontal or temporal lobes. The dorsum sellæ and the anterior and posterior clinoid processes are stronger and more resistant, but gradually get eroded by a steadily growing tumour. The lateral X ray outline of the dorsum sellæ may be retained owing to the persistence of the posterior clinoids and the thick lateral portions of the dorsum, even though the thinner mid-portion be totally absorbed. Writers have sometimes described the "pushing back" of the dorsum by a growth. I have seen no evidence of such a movement. Even when the dorsum is extremely thin it preserves its original direction until it is obliterated or absorbed. This suggests that new bone is not readily formed in this situation under the stimulus of the tumour growth.

The fossa assumes a cup-shaped outline at a certain stage of erosion, whilst later all traces of original shape may be banished.

Sometimes the antero-inferior wall of the fossa is eroded and the sphenoidal sinus opened by an advancing neoplasm, though this never occurs before the endocranial extension has taken place. More frequently the bulging of the sella into the sinus is accentuated; as the sellar floor is thinned more bone is formed, so that ultimately only a few millimetres may separate the sella from the anterior sphenoidal wall. In no other way can we explain the common experience of operators who meet the thinned sellar floor immediately on opening the sinus.

By comparing X ray pictures taken during life with post-mortem records, we may conclude that if the dorsum sellæ or anterior or posterior clinoid processes are obliterated or markedly eroded, there must be a large intracranial extension to the tumour. The same holds good if the growth has burst into the sphenoidal cells.

(*b*) Interpeduncular tumours gain a considerable size before their downward pressure causes erosion of the dorsum sellæ and the clinoids. Later a total obliteration of the confines of the gland may result, but for some time the main outline and size of the fossa may remain fairly normal, whilst the upper aperture appears larger than normal.

SURGICAL APPROACH.

It is reported that only a few years ago a famous surgeon remarked that it was tempting Providence to operate in the region of the hypophysis; and if we consider the comparative inaccessibility of the fossa and reflect that till recently our knowledge of the functions of the hypophysis was very vague, it is certainly no matter for surprise that this has been one of the last parts of the body to be explored by the surgeon. The last decade, however, has witnessed the birth and development of hypophyseal

surgery, and now that many methods have been tried and records published the time has come to survey these experiences and, if possible, draw some conclusions for future guidance.

All over the world Horsley is recognised as the pioneer of pituitary surgery. He followed his experimental investigations (published in 1886) by suggesting an operation for approaching the gland to Paul, of Liverpool (in 1893), and although this operation was not fully carried out it raised the question of the feasibility of the operation. Horsley himself operated on one case certainly as early as April, 1904, and possibly still earlier than this, but every writer on this subject has had to regret that this noted operator has not published full details of his cases. Horsley adopted a route through the temporal fossa, and had already done nine such operations by 1906.

Meanwhile others were considering different methods of approach. In 1900 König published his views favouring a transpalatal approach, whilst Loewe and Kocher devised methods of resection of the upper jaw and palate in order to obtain sufficient room to attain the fossa through the sphenoidal cells. In 1904 Kiliani experimented on the cadaver and outlined an extensive operation in which a large bilateral frontal bone flap was reflected, the dura opened, the longitudinal sinus ligated, and the frontal lobes elevated.

Krause, who in 1900 removed a bullet from the chiasmal region by utilising a frontal bone flap, in 1905 removed a large tumour by the same method from the neighbourhood of the pituitary fossa. He reached a depth of 10 cm., but the patient did not survive.

In 1906 a great impetus was given to the quest of a suitable route of approach by Schloffer's article, in which he considered critically the various proposed operations. In the succeeding year he operated successfully by the nasal route on a patient with bitemporal hemianopsia. Quickly succeeding the publication of this case were developed a multitude of modifications of the operation by the nasal route, all of which had as the basis a partial or complete removal of the nasal septum, turbinate bones, ethmoidal cells, and possibly the anterior walls of the frontal sinus. Approach to the nasal cavity was often furthered by splitting or reflecting the nose.

In 1909 Kocher adopted a submucous resection of the septum for approaching the sphenoid; and in the following year both Hirsch and Cushing perfected their submucous operations, which have now, with slight modifications, been performed successfully on a large number of cases. The need for an aseptic route has recently caused a revival of the approach direct through the cranium in the frontal region, extra room being gained by depressing the eyeball after removal of the orbital roof.

The pituitary fossa has therefore been arrived at either direct through the cranium or indirectly through the facial skeleton. The following table shows the routes that may be utilised:—

Cranial.	
Temporal—	Frontal (Krause).
Intradural (Horsley).	Fronto-orbital (Frazier).
Temporal—	Callosal puncture.
Extradural (Braun).	
Facial.	
Nasal—	Paranasal (Chiari, Kahler).
Septal resection (Schloffer, Hirsch, West, Cushing, Kanavel, Halstead, &c.).	Palatal (König, Preysing).
	Maxillary.
Nasal—	Suprahyoid pharyngotomy.
Ethmoid resection (Hirsch).	

The region immediately above the pituitary fossa may be reached by trephining the vertex and puncturing the corpus callosum, but though this method has been useful in relieving general pressure symptoms it is impracticable as a route of approach for removal of a tumour.

There are only four of these methods which have been practised on a sufficient number of cases to merit special attention. These are Horsley's temporal method, Schloffer's coarse nasal operation, Hirsch and Cushing's submucous septal approach, and Frazier's fronto-orbital route.

Temporal Method.

Though Horsley has never published the details of his cases one has gathered the following facts from those who have seen him operate and from the accounts of four pituitary cases operated on by Horsley mentioned in Tooth's classical paper on Brain Tumours. Horsley operates in two stages, in the first making a temporal bone flap, and in the second incising the dura, lifting up the temporal lobe and exposing the lateral aspect of the pituitary body. Of the four cases referred to above, one died six hours after the operation without recovering consciousness, another developed hemiparesis and hemianæsthesia after the second stage of the operation, whilst in a third case the operation caused motor aphasia lasting some time. Certainly the distance from the temporal fossa to the sella turcica is the shortest possible route of approach, but the temporal lobe has to be dislocated very seriously, and unless the tumour peeps over the cavernous sinus it would almost be inaccessible. Cushing found the method impracticable in human beings although easy in dogs. Horsley in 1906 said that he had had two deaths in ten cases.

Schloffer's Nasal Operation and other Methods.

There are very many modifications of Schloffer's method, which agree, however, in these points. An approach is gained to the nasal cavity either directly through the anterior nares or by reflecting the nose downward, upwards, or to one side, or by splitting it in various ways, or by a sublabial incision. Varying portions of the nasal septum and lateral walls of the nasal fossa are removed to furnish more room, the sphenoidal sinus is opened and through it the pituitary fossa is approached. Von Eiselberg's technique may be taken as an example since he has performed the operation more often than any other surgeon.

The posterior nares are plugged by Belloc's method and the threads brought through the right nostril and the mouth and then tied over the lip. An incision is made along the left naso-labial furrow round the left ala nasi and continued up to the root of the nose and as far as the glabella, a small transverse continuation going as far as the inner canthus of the right eye. The incision cuts through the whole thickness of the skin. The nasal bone is cut through with bone forceps or chisel. Then the philtrum is cut through and the anterior part of septum severed in such a way that a large piece of the cartilage and vomer remain attached to the reflected nose. This technique is supposed to prevent a sinking in of the nose afterwards. The whole external nose is now reflected to the right and either retracted or fixed to the cheek by a suture. The turbinated bones and the rest of the nasal septum are now removed, but the mucous membrane between the turbinates is not disturbed, the last part of the vomer and the rostrum of the sphenoid are taken away, and the sphenoidal sinus is opened.

The radiogram is now frequently consulted and the distance of the sphenoidal sinus from the glabella estimated and compared with the dimensions in the patient. After removal of the anterior and under portion of the wall of the sphenoidal sinus the mucous membrane lining the sinus is carefully removed with sharp spoon and raspatory, whereby

the swelling caused by the pituitary fossa is brought clearly into view in the upper and posterior portion of the sinus. The swelling is carefully broken into by a chisel and the hypophysis exposed. The opening is enlarged by the aid of a sharp spoon or small chisel or a punch forceps. After incision of the dura mater one generally sees a pulsating swelling (especially when it is cystic). By the aid of a sharp spoon is now taken away as much of the tumour as can easily be removed without going too deeply in towards the brain.

An isoform gauze strip is passed through a drainage-tube of medium size, and a 4 cm. long portion allowed to project from the end. This projecting piece of gauze is laid in the pituitary fossa and the lower end of the tube sewn to the skin at the left nasal aperture. The nasal cavity is now swabbed, inspected, and, if there is no more bleeding, the Belloc's plug is removed. The nose is then stitched back in its place. The operation takes one to one and a half hours.

Von Eiselberg had in the year 1912 performed 16 operations by the Schloffer method. Five of these cases developed meningitis after the operation and four succumbed to the meningeal infection. Since this operator has had better results than the average, the outlook would not be promising if there were no better method such as is provided by either of the next two operations to be described. Before discussing the advantages and disadvantages of this operation we will describe Cushing's and Frazier's operations.

Hirsch and Cushing's *submucous septal approach* is really one of the most ingenious in the whole range of surgery.

Cushing used to plug the posterior nares with a sea-sponge and put the head in a moderate Rose's position. Lately he has abandoned the post-nasal plugging and used intratracheal insufflation anæsthesia. A 2 cm. long incision is made transversely in the frænum of the upper lip and by blunt dissection the lower margin of the nasal septum exposed. The mucous membrane is then dissected back from the septum on both sides and retractors inserted allowing of the removal of a strip of septum including most of the vomer, the lower edge of the median plate of the ethmoid, and a small strip of cartilage. Dilating forceps are then introduced between the retractors (so as to flatten the turbinates) and a bivalve speculum inserted in place of the retractors. With the aid of a good head-light the attachment of the septum to the sphenoid is exposed and the anterior and lower walls of the sinuses are chipped away with special rongeurs. The lining mucous membrane of the sinus is then removed and the floor of the exposed sella turcica removed. No drainage is carried out. "Every step must be absolutely under the operator's direct vision."

The differences between Cushing's technique and that of Hirsch are as follows:—

Hirsch operates under local anæsthesia. A preliminary removal of the middle turbinates is customary some days before the main operation, so that dilatation of the submucous passage by special plugs is unnecessary. The initial incision is made through the mucous membrane of the septum to one or other side. Hirsch lays stress upon precise arrangements being made for the operation to ensure an undisturbed procedure. A steriliser is kept handy and the instruments are frequently re-sterilised during the operation.

The *fronto-orbital method* of Frazier is performed by that operator in the following manner:—

As a preliminary the frontal sinuses are transilluminated to observe their relation to the supra-orbital margin. Under general anæsthesia an osteoplastic flap is formed in the frontal region. The line of incision starts at the external angular process and is continued forward along the supra-orbital ridge through the eyebrow-line till the mid-line at the root of the nose is reached; then it ascends vertically till well within the scalp hair-line, finally turning horizontally outwards and returning to the temporal region on a level with the beginning of the incision. The tissues are retracted sufficiently to allow the necessary openings to be made for the reflection of the bone flap.

The bone flap is then turned outwards. The outer portion of the supra-orbital ridge is removed in wedge-shaped fashion, so that the fragment can be replaced without mechanical fixation. The periosteum is freed from the roof of the orbit and the thin roof itself removed with rongeurs as far back as the optic foramen. If necessary, a small opening may be made on the dura in order to allow cerebro-spinal fluid to escape and thus permit of greater displacement of the frontal lobe. With flat retractors the orbital contents are now displaced downwards and outwards, the frontal lobe still covered by the dura is elevated until a view of the optic nerve as it passes from the optic foramen to pass on towards the sella. The dura is then incised in a horizontal direction about a centimetre above the base of the skull for a distance wide enough to admit the blade of a retractor and to expose the contents of the sella.

This operation has been slightly modified by Elsberg, who makes the base of the flap in the mid-line thus avoiding the visible vertical scar. Elsberg also removes the orbital margin with the bone flap.

No useful purpose would be served by describing in detail the more rarely performed operations. We may state, however, that König's operation consists in splitting the soft palate, removing the posterior part of the hard palate, and so obtaining a direct view of the sphenoid through the mouth. The sphenoidal sinus and sella turcica are then opened by the chisel.

Chiari entered the nose by a paranasal incision and after exenterating the ethmoidal cells and retracting the eyeball outwards, reached the sphenoid cells, whilst Kahler has modified this technique so as to keep nearer the orbit. This, to a certain extent, diminishes risk of infection from the nose, but the approach to the sella is somewhat oblique and lateral.

STATISTICS.

In considering the mortality statistics of the various routes of approach there are several sources of fallacy. The extent of intracranial growth and amount of increase in intracranial pressure prior to operation have an important bearing on prognosis, and it is not fair to compare results of cases with marked general pressure symptoms with those where the growth is confined to the fossa. We cannot judge the value of the methods by studying isolated cases done by different operators who are more prone to register successes than failures. Therefore, so far as is possible, the following statistics deal with series of cases performed by various operators. The most important available figures can be tabulated as follows:—

Method.	Operator.	No. of operations.	Mortality.
Schloffer's nasal method..	V. Eiselberg.	16	4 = 25%
Submucous septal	Hirsch.	26	4
	Cushing.	106	8 = 12 = 9%
		132	
Temporal route	Horsley.	10	2
	Cushing.	8	0 = 2 = 11%
		18	
Fronto-orbital	Frazier.	4	0
	Cushing.	16	1 = 8·6%
	Sargent.	3	1
		23	
Paranasal	Kahler.	7	0
	Chiari.	2	0 = 0%
		9	
Palatal	Preysing.	6	4 = 66%

It should be added that Cushing's 8 temporal explorations did not promise to give him a satisfactory approach without undue retraction of the temporal lobe, so with the exception of two cases the operation was not completed and should hardly be included in the statistics. Hirsch excluded from his figures one case in which a fatal result occurred after operation, where the necropsy showed the

presence of a local hydrocephalus and not a pituitary tumour.

CONSIDERATION OF METHODS OF OPERATION.

Let us now consider the merits of the various methods.

The nasal route of Schloffer with its various modifications (except the submucous) is fundamentally unsound. The sella is approached crudely through the nasal cavities, which are usually teeming with microbes and often harbour foci of suppuration in the adjacent sinuses; open raw surfaces are left by the removal of the turbinates and septum which must take a long time to heal, and which are a constant danger of infection. Added to this considerable deformity of the external nose may follow. Moreover, von Eiselberg, the great advocate of this method, has to confess that a horrible odour emanates from the nose of those cases that recover. (The modifications of West and Citelli, which traverse the nasal passage but only remove the posterior part of the septum, are open to similar objections, and the added one that the avenue of approach is very much more restricted.) This *a priori* reasoning is borne out by operative facts as the table shows.

Similar objections lie against the palatal method which traverses the septic post-nasal space. Here there is also likely to be some danger of aspiration pneumonia. At any rate, Preysing's series of six cases is sufficient for us to condemn it.

The method of approaching the sphenoidal sinuses through the ethmoid by an external incision (Chiari-Kahler) has against it the same theoretical objections as stand against Schloffer's operation, and though Kahler has had some success it is too early yet to say much in favour of it. It is certainly no better than the median submucous method.

The temporal method has only been found practicable by one operator, who has a considerable mortality, and the records of those cases which have been published do not encourage us to hope much from this route.

The Submucous Nasal Operation.

If one is to approach the pituitary fossa through the sphenoidal sinuses it is clear that the only promising, one could almost say justifiable, method is the submucous approach of Hirsch or Cushing. Especially in the hands of the latter, who adopts the sublabial incision, has this operation been attended by very little risk of meningitis. In a personal communication received in January this year Professor Cushing writes that in the last 18 months he has performed 32 operations by the sublabial submucous method with only one death—a truly remarkable achievement.

Hirsch in his first 26 cases lost only one case from meningitis, but two others recovered after severe septic trouble at the base of the brain; whilst in Cushing's earlier series meningitis occurred four times with three fatal results. The experience of Cushing and of Sargent appears to indicate that there is greater risk of meningitis in operations undertaken by the submucous trans-sphenoidal method when the diagnosis has been mistaken or when the tumour has originated above the sella. Nevertheless, there must always be a slight danger of meningitis even with the submucous operation, inasmuch as the sphenoidal ostia open into the nose.

The submucous method is one which requires special skill in working in such a confined space. It has several special difficulties dependent on the variations in size and shape and relations of the sphenoidal sinuses, and even when the sella is opened the surgeon is working more or less in the dark, for he cannot see what relationship his inserted spoon bears to the third ventricle. If the third ventricle is opened a cerebro-spinal rhinorrhœa fraught with great danger of infection may ensue. Although any existing pituitary bulge is likely to be increased by the advent of a neoplasm, still there are many cases in which no such bulge exists, and on several occasions operators (Cushing, Halstead, &c.) have had to stop the operation and insert a metal clip for radiographic orientation purposes. In children who have undeveloped sinuses it seems to be going out of one's way to seek trouble to adopt the nasal method. If, however, the submucous nasal operation is adopted it would be a wise plan not only to study the X ray plate carefully, but also to make a preliminary sounding of the sphenoidal sinuses, a suggestion made by Blumenthal. If the trans-sphenoidal crest is shown in the X rays it will provide an absolute guide to the pituitary fossa when the sphenoidal sinus is opened.

Facts in Support of Fronto-orbital Method.

In favour of the fronto-orbital method are the facts that it provides an aseptic route, allows each step of the operation to be performed by the aid of sight, and does not necessitate much dislocation of the brain like the temporal method. It is true that some œdema of the eyelid occurs after the operation, and that sometimes the eyeball may not be left quite on the same level as the opposite one. This latter drawback should be avoided by care at the time of the operation. The frontal sinus is sometimes in the way, but by previous X ray or transillumination one can estimate the size and avoid it at the time of operation, and if it is opened it may be temporarily plugged.

An additional fact in favour of this method is that the primary enlargement of hypophyseal tumours is towards the brain, and the enlarged gland thus presents an easier object for attack. By far the most common indication for operation in pituitary tumours is oncoming blindness. (In the last 58 cases which Professor Cushing has treated since the publication of his Weir Mitchell lecture in June, 1914, all have shown visual disturbances from pressure on the optic chiasma.) Since anatomy teaches that the chiasm is well above the roof of the pituitary fossa, and inasmuch as it is recognised that a large amount of pressure is necessary to interfere with visual conduction, it seems certain that nearly all cases which come to operation with visual symptoms must have a considerable intracranial extension. This is confirmed by a study of necropsies. I have not yet seen a post-mortem record of any cases with eye symptoms in which the necropsy did not reveal a large intracranial extension of the growth.

Of course, if the growth is primarily supra-sellar most, if not all, operators would select the intracranial method. It is often difficult to say whether the growth is supra- or infra-sellar. Surely it is better, if possible, to relieve pressure upon the chiasma close to, rather than remote from, that structure.

It is true those cases of acromegaly without optic symptoms, in which the gland though enlarged is confined to the sella, might reasonably be treated by the nasal route, but it is a little doubtful whether one should adopt an operation with an 8 per cent. mortality for the ordinary symptoms of acromegaly.

CONCLUSION.

To sum up, we may say that there are two operations which have proved fairly satisfactory for approaching the pituitary fossa, the Hirsch-Cushing submucous nasal method, and the fronto-orbital method of Frazier. Though it is not possible yet to decide finally between these, the opinion can be expressed that the fronto-orbital route is more suitable in the great majority of cases. In the three cases which the speaker has operated on this method has been adopted with success. All three of these cases were almost blind before brought for operation. In the first case a portion of an endothelioma was removed and the general condition improved, though the sight did not improve. The third case obtained great improvement of vision after a cyst was evacuated. The second case proved to be one of syphilitic meningitis, and though the patient said he was a little better after the operation there was no obvious improvement in his condition. Now that the mortality of the operation has diminished surgeons can more readily urge that patients with oncoming blindness due to pressure on the chiasma should be treated by operation more early than is now the case. An extended and more fully illustrated account of the whole subject will appear in the *British Journal of Surgery* in July.

CONTRIBUTIONS TO THE STUDY OF SHELL SHOCK.

BEING AN ACCOUNT OF CERTAIN DISORDERS OF CUTANEOUS SENSIBILITY.

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III.[1]

IN my first communication on this subject I described three of the earliest cases of severe shell shock I had seen, which were characterised especially by defects of memory, vision, smell, and taste. Among the large number of cases which have since come under my observation I have met (in about 25 per cent.) with various disorders of cutaneous sensibility, some distinctive features of which form the subject of the present contribution.

Over-reaction and "Hyperæsthesia."

The following is a pronounced instance of general over-reaction:—

CASE 9 (Case-number 227).—Stretcher-bearer, aged 19, with 18 months' service, and 6 months' service in France. Was seen by me on the day after admission to a base hospital. Four days before admission he had been "blown up three times by aero-torpedo trench mortars," while attending to the wounded in the trenches during an enemy attack. He said that one had blown him in the air, that another had blown him into a dug-out, and that the third had knocked him down, but that nevertheless he continued his work of carrying away the wounded to the dressing station. Two or three hours later, after he had finished, he was resting in a dug-out when "everything seemed to go black" (probably he had a hysterical "fit") and he became "shaky," and had remained so ever since. He said that he had hardly slept for seven days before he "gave in." He appeared an honest, courageous lad, but was obviously in a very "nervous" condition, making irregular spasmodic movements of the head, arms (especially the right), and legs (especially the left). There were well-marked coarse tremors and incoördination during voluntary movements of the arms. He touched his nose with far greater uncertainty when his eyes were closed. The lightest touch of cotton-wool on the limbs or head provoked very lively movements; obviously he dreaded the next touch. "I was always ticklish," he explained, "but never like this. I can't stand it, sir." A pin-prick produced a series of most violent spasms, almost amounting to a convulsion. He sweated considerably during examination. There was much rigidity in the legs, and so much spasm that a knee-jerk was unobtainable until my second visit, the sixth day after admission. Plantar stimulation gave a flexor response. He suffered from visual hallucinations of bursting shells; he also heard them when dozing.

The patient improved considerably with rest and treatment, but 17 days after admission, lying asleep in bed outside his tent in the sunshine, he woke to find himself being carried back in his bed owing to a sudden shower of rain. This brought about a recurrence of such terror that a special nurse was considered necessary that night. On the next day he was still very "jumpy" and alarmed, even at the sound of a footstep; he complained of severe headache. Three days later he had again improved and was transferred to England, where, after two months in hospital and one month's leave, he returned to light duty.

Cases like this, of general sensori-motor over-reaction, appear to be rare after shell shock. But I believe that they may be regarded as an extreme form of the far commoner condition of unilateral or otherwise more restricted "hyperæsthesia," and for this reason (based on considerations which will appear immediately) I place the word in inverted commas. Such local "hyperæsthesia" was specially apt to occur over areas which were the seat of spontaneous (subjective) painful sensations. Unilateral "hyperæsthesia" was combined in several cases with contralateral anæsthesia or hypæsthesia. In others it was sometimes difficult to be sure whether one side of the body was subnormally sensitive or whether the opposite side was supernormally sensitive, although as a rule the patient's "jumpiness" and muscular over-reaction afforded a sufficient clue to the latter condition.

The nature of the "hyperæsthesia."—Several cases of "hyperæsthesia" presented features recalling to my mind those which have been emphasised by Head and Holmes[2] in their observations on lesions of the optic thalamus, and which have been attributed by them to a loss of the inhibitory control normally exercised by the cerebral cortex over the activity of the thalamus. They compare this loss of cortical control over the thalamus to the loss of cortical control over the bulb and cord; just as the latter manifests itself in muscular rigidity, increased reflexes, &c., so the former results in sensori-motor and affective over-reaction. In such thalamic over-reaction a cutaneous stimulus produces abnormal motor response, excessive tingling and diffuseness of sensation, and increased affective reaction of pain or pleasure.

With the most careful avoidance of suggestion on my part, various patients suffering from local "hyperæsthesia" after shell shock have given me the following observations: Cotton wool "tingles more," "tingles and runs right up," "is more tingling," "tickles more," "is more ticklish," "itches more," "is more itchy," "gives me an awful feeling—a tingling tickle with an after-itch." A pin-prick is "like an electric current," "more like an electric shock," "stings like a bee," "shoots up the arm," "seems to run up more" (from foot to knee), "shoots more than usual up the

[1] The first of these communications appeared in THE LANCET of Feb. 13th, 1915, p. 316, and the second in the issue of Jan. 8th, 1916, p. 69.

[2] Brain, vol. xxxiv., 1911-12, pp. 102-253; THE LANCET, 1912, vol. i., pp. 79, 144.

leg and lasts longer as an after-tingling," "is sharper and itches more."[3]

As would be expected, such over-reaction when limited to one side of the body usually made localisation of the spots touched on that side distinctly more difficult and more inaccurate than on the normal side. No doubt the spatial threshold would have been raised, but I have not yet applied the compass tests to such cases.

Clearly, far closer inquiry is needed to establish more than the superficial resemblance which is here indicated. In view of the relation already recognised between emotion and, on the one hand, shock, and on the other, thalamic activity, such an inquiry would have especial interest. Unfortunately (or fortunately, in relation to freedom from prejudice) the relation was not in my mind when these observations were recorded.

As Head and Holmes observe, the paths of cortical control "come from all parts of the cortex to impinge on the thalamus" (p. 179). No doubt in unilateral lesions of the optic thalamus many of the striking features observed are due to the more or less complete and abrupt *structural* severance of the thalamus of that side from the sensory areas of the cortex. But in the cases with which we are now dealing, the interruption, if it occurs, is of a *functional* character, and the cortical centres here deprived of their normal inhibitory action are situated far "higher" than those of which we have at present any topographical knowledge, acting, it may even be, not directly on the thalamus but on intermediate levels. As they stand, the patients' replies indicate a sensory as much as an affective over-reaction. And in this connexion we may recall certain features of what Head and his fellow workers have called "protopathic" sensibility where one peripheral system of sensibility obtains full play, no longer controlled by the inhibitory influence of the higher ("epicritic") system—yet another instance of unleashed primitive sensibility.

In none of their cases did Head and Holmes meet with a lowered threshold—i.e., *a true hyperæsthesia*—on the affected side, although the affective over-reaction was throughout a characteristic feature. The patient typically replied that a prick was less sharp and less plain over the affected side, although it hurt him more, and in several cases an actually higher threshold was found on that side.

We have, therefore, to consider whether the "hyperæsthesia" which is met with in certain cases of shell shock is the outcome of genuine increase in sensibility or whether it is not due to sensory diffuseness and increased affective response. At first sight it would appear that this question could be settled by comparing, in hemi-hyperæsthetic patients, the thresholds to pain or touch of the two sides. But even had I had the opportunity of employing an algesimeter or von Frey's hairs in suitable cases, I am very doubtful if any accurate readings on the affected side would have been obtainable. For in the case of pain, at least, it would always have been difficult to ascertain whether the patients were responding to the minimal sensation of pain or of touch or to the dreaded discomfort which they expected the stimulus to produce, so "jumpy" was their invariable condition. Moreover, it is quite conceivable that even if the *threshold* for pain and touch were found normal, the *sensation* might, nevertheless, be abnormally strong after once that threshold had been passed—that is to say, when the stimulus was powerful enough to give rise to any sensation at all. We might thus account for the fact that in several of my unilateral "hyperæsthetic" cases a warm or cool tube felt warmer or cooler on the affected than on the normal side.

At all events, attention must be drawn to the fact that in several of my cases the condition of "hyperæsthesia," whatever may have been its nature, passed over into one of distinct hypæsthesia, without, however, losing all its features. Thus, one patient, during a stage of mutism, had shown unilateral (left) "hyperæsthesia," which 12 days later gave place to diminished sensibility; whereupon he complained that "the prick is more numb on this (left) side and seems like a blunt point, but I feel it more, because it shoots more," and he averred that light touch "tingles up the left side, but it does not feel numb on the right as it does on the left."

In another case the state of "hyperæsthesia" over an aching, tender, "jumpy" abdomen (across which sandbags had been blown through a shell explosion) was accompanied by "dullness" to cotton-wool over that area. In yet another, previous "hyperæsthesia" of the right leg and foot ("it seems to jab all over") was followed by a "sleepified pins-and-needles feeling" in the right calf, but the prick still seemed "to run up more" than on the left side.

Another case is noteworthy of loss of sensibility on one side, on which patches were found giving a sensation to pin prick of "tickling like a hair, more ticklish than usual, felt over a wider area" than on the opposite side.

Anæsthesia.

But whatever be the cause and nature of the disorders of sensibility already considered, there can be little doubt as to the origin of the far commoner (2 : 1) condition of simple anæsthesia or hypæsthesia. It is the outcome not of relaxed control but of dissociation or inhibition in the higher cortical regions. How far suggestion plays a part in this process may be deferred for the present; I need only now remark that I was alive to the possibility of the anæsthesia being produced by medical investigation and took every precaution to avoid it.

The loss of sensibility varied considerably in degree. In the slightest cases it could only be demonstrated by comparing normal with abnormal regions of the skin surface. Loss of pain was commonest, the prick of a pin being (*a*) merely dulled, or (*b*) recognised as the end of a match or pencil or as my finger or finger-nail, or (*c*) not even felt as a touch. Only in the severest cases was sensibility to deep pain lost.

Defective power of localisation (because "I can't feel it so well") was often present over hypæsthetic regions. Thermal sensibility was also found to be deficient, when there was pronounced loss of sensibility to light touch and pain, hot or cold stimuli appearing less hot or less cold over the affected areas. The surface temperature, especially of the extremities, was sometimes very cold; and in one case a bilateral difference of body temperature accompanied a bilateral difference of sensibility to light touch and to cutaneous and deep pain, yielding correspondingly different answers to moderately warm and cool stimuli on the two sides owing to the different "temperatures of adaptation" thus arising.

[3] It was this kind of disturbance of sensibility which was alluded to in Case 5, described in my second communication.

Sometimes such anæsthesia or hypæsthesia arose immediately, especially in patients who had been buried: and in several of these cases, as we shall see, the loss of sensation occurred in regions which had become painful or numb after being hit by sandbags or other objects. In other cases the onset occurred later, and was more widely distributed. It then appeared to be the result of emotional stress (terror, horror, or anxiety) often uncomplicated by initial bodily pain, but almost invariably subsequent to a period of amnesia.

Hemi-anæsthesia.

It was especially in such cases that the condition of hemi-anæsthesia, so well known among hysterical patients, occurred. The two following cases may be cited as instances of this condition. (In the description of them, and henceforth in this article, the words anæsthesia and hypæsthesia will be used in their narrower sense of defective sensibility to *touch*, while analgesia and hypalgesia will be employed for defective sensibility to *pain*.)

CASE 10 (Case-number 126).—Rifleman, aged 33, with 12 years' service, and 5 months' service in France. Was admitted to a base hospital for inquiry into his mental condition, he having wandered from his post without permission five weeks previously. On admission he appeared to be in a state of semi-stupor typical of the state following shell shock, unable to say why he had been sent to hospital, replying "I don't know" to nearly every question, and only slowly able to recall the names of his children, but able to give their ages. He later admitted to past abuse of alcohol. He complained of right frontal headache. His right arm was very tremulous even when at rest, and the grip of the right hand was distinctly weak. The knee-jerks were somewhat exaggerated, the plantar reflexes were flexor, and the abdominal reflexes were not obtainable. He stood and walked naturally; no Rombergism. His pupils reacted normally to light; no nystagmus.

Two days later the patient seemed distinctly brighter. On investigation of his cutaneous sensibility, he proved to be totally insensitive to pain and light touch on the right side of the face, tongue, and trunk, and on the right limbs. Sensibility to deep pressure, as tested by Cattell's algometer on the thumbs, was completely absent on the right thumb but was normal on the left. The compass test showed a normal spatial threshold on the left side; on the right side, of course, the threshold was unobtainable. With eyes closed he distinguished a penny from a watch successively held in the right hand, terming the former "sharp," the latter "a piece of glass"; he named them at once when held in the left hand. The vibration sense was wholly lost on the right side, save on the right temple, where it was feeble as compared with the normal left side. He failed to recognise in which direction his right hallux was moved, and failed to appreciate passive movements of his right arm; nevertheless, he was able to imitate with his right arm the position in which his left had been placed. Sensibility to temperature not examined. Tested for smell and taste, he showed complete right hemi-anosmia and hemi-agusia to all smells and tastes; left side, normal. The left ear heard normally, the right was almost completely deaf. The sound of a tuning-fork placed on the vertex was localised in the left ear. Otoscopic examination revealed no abnormality. The right visual field was limited to the fovea, the left was normal. The visual acuity of the right eye was 4/18, of the left 4/6. The right eye could only read Jaeger type No. 14, whereas the left read No. 2.

CASE 11 (Case-number 94).—Sergeant, aged 32, with 11 years' service and 8 months' service in France. Was admitted to a base hospital for inquiry into his mental condition, he having been charged with malingering. For seven years before the war he had been teaching in an army school. On arrival in France he had at once found the heavy marching too much for him. He had fainted several times during the retreat from Mons and during the fighting on the Aisne, where he had reported sick for dysentery. He stated that on that occasion he went to a field ambulance for two days, and that owing to the bursting of shells, one of which struck the ground and knocked him into a ditch, the ambulance was forced to move for shelter into a cave. Since then he had suffered from tremor which, he stated, was much worse when he moved his limbs or was addressed, or when he felt himself watched. After discharge from hospital he had been employed for three months as despatch rider on a motor-cycle, but he lost his nerve for this work and was then given the duty of taking charge of fatigue parties. Again he had found the work—"long distances and long standing"—too much for him. Finally, the charge of malingering was preferred against him. He had always been a total abstainer.

The patient was a very nervous, delicate-looking man, with widely dilated pupils, prominent eyeballs, a pronounced tremor of the right arm, and a pulse frequency of 102. No signs of goitre. The tremor was markedly diminished when he was left alone, and was increased, extending to the head, when he stood, and to the left arm when both arms were outstretched. He could control the tremor to a certain extent. He complained that he frequently woke at night, but said that he had no dreams. He had noticed that he forgot the names and faces of people he had known and the earlier parts of books he read. Memory tests demonstrated the defective state of his memory. He said that he felt very despondent and exhausted after the railway journey to this hospital.

Two days after admission the patient said that he had slept much better last night. Pupils much smaller next morning. Pulse-rate 75. Sensibility to light touch normal. Sensibility to pain distinctly reduced over the whole of the right side of the head and body and over the right limbs. He generally described a prick of the right arm or leg as the touch of my finger. There was almost complete hemi-anosmia and complete hemi-agusia on the right side, peppermint, eucalyptus, and opium being only smelt by the left nostril, ammonia being termed "cold" to the right nostril, ether having a "faint" smell, while both were at once recognised by the left nostril. Visual acuity: right eye read two letters; left eye all letters at 5/5. Right eye read only a few words of No. 1 Jaeger, and then the print blurred; left eye read this type easily. Visual fields: general limitation in right eye; normal in left eye. Hearing not examined. Patient transferred to England, where, after one month in hospital and two months' leave, he was discharged from the army as being no longer physically fit for active service. He is still (eleven months have passed since he left France) very weak, physically and mentally, is subject to severe headaches, and becomes tremulous, especially in the right arm, when tired.

The Influence of Past History.

About two-thirds of the cases of disturbed sensibility were accompanied by spontaneous (subjective) disorders of sensation or by disorders of movement. Local aching, tenderness, muscular over-reaction, rigidity, and spasms were common accompaniments of "increase" of sensibility; similarly, local numbness and tremor, paresis, or palsy often went with loss of sensibility. Into the details of these disorders it is hoped to enter on another occasion. Such disorders could often be successfully traced to actual blows upon the region in question due to the impact of sandbags or other objects, or to the patient's fall after being lifted or pushed by the force of the concussion.

In a considerable number of cases the site of the sensory disorder caused by the shock was determined by a previous history of pain in that region. For example, one patient who had suffered four years previously from "ruptured kidney with blood in the urine" after a football match, complained of pain in his "back and kidneys" after being buried by a shell. Another, who on admission complained of pains in the back when he breathed, gave a history of severe pleurisy from which he had suffered 12 months previously. Yet another, who after being lifted by a shell began to suffer from such pains in the left lower costal region and of pain in the left leg, recalled that he had had

pleurisy on that side many years ago and that a piece of glass once entered his left leg, from which, he believed, it had never been removed.

In relation to the natural question as to how far the earlier experience may be actually revived in consciousness the following case deserves mention:—

CASE 12 (Case-number 452).—Private, aged 26, with 11 months' service and 1 month's service in France. Was admitted to a base hospital on the day after receiving a shock. The concussion produced by a shell had caused the dug-out in which he was standing to collapse. The props gave way and a beam hit him on the left side of his face (he pointed to a bruise on the face). It forced him forwards to the ground on his right side and pinned him there; at the same time a piece of corrugated iron fell on the left side of his back, and his right leg became pinned by a cross-beam which fell on the back of his thigh. He did not lose consciousness, but was merely dazed. "I had about three tons on top of me," he explained; "one of my mates had both legs broken and the others were badly shook up. The rest of the platoon dug us out. Two men helped me to the dressing station." He had been able to walk since, but complained that he had a pain in the right groin and that his right knee gave way. He was quite certain that about 15 minutes after the accident he told "one of the other fellows" that he had "no feeling" in his right thigh. His medical officer did not arrive until about half an hour later. This feeling of "numbness" (as he calls it) increased, he says, until the day before my first visit, when the right thigh was found to be totally analgesic, to the level of the upper margin of the patella, save for a narrow strip in the mid-line on its posterior aspect. Since then the "numbness feeling" of the thigh had improved, and correspondingly I found that whereas the thigh was now generally hypæsthesic and hypalgesic over its anterior surface, the only area of complete anæsthesia and analgesia was on the outer side of the lower half, the posterior surface having regained its normal sensibility. The patient explained that three years ago he had been buried 4 feet deep in a brickyard beneath a heap of clay which fell upon him. "I felt it most," he said, "in the right leg. I fell face downwards, like this time. My thigh was stiff and sore, not numb as it is this time. The back of it got black and blue." He admitted that the present accident *immediately* reminded him of his previous experience.

There was slight weakness of the lower facial muscle on the left side, of the left orbicularis palpebrarum, and of the arms, but no tremors nor any disturbance of sensibility on the face, arms, chest, back, or abdomen. The left buttock, across which a plank fell, showed diminished sensibility to cotton-wool ("it feels number"), while a prick felt "like a match" until the point was inserted deeply when it was recognised as a prick, but the pain was "duller" than over the right buttock. Sensibility to warmth and coolness and to the vibrations of a tuning-fork was diminished over the right thigh, especially over the anæsthetic and analgesic area, where sensibility to deep pressure and to deep pain was also very markedly diminished. No threshold could be obtained over this area with the compass tests. The visual fields and taste and smell seemed unaffected. The corneal and conjunctival reflexes were diminished. No jaw-jerk was obtainable; the palatal, pupillary, abdominal, and plantar reflexes were normal. A knee-jerk was just obtainable with the aid of reinforcement on the left side, but not on the right. Three days later the left buttock had regained its sensibility, and the small area of total cutaneous anæsthesia and analgesia on the right thigh had become one of hypæsthesia and hypalgesia, with corresponding improvement in the sensibility of the rest of the thigh. The patient was now up and feeling very much stronger. He was sent to a convalescent camp.

Even in cases where there could have been no actual hurt from the effect of the shock, the subjective disorders produced could occasionally be elucidated by recourse to the previous history of the patient. For example:—

CASE 13 (Case-number 330).—Private, aged 22, with 13 months' service, 3 months' service in France. Was seen by me in a casualty clearing station the day after admission. Two nights before my visit he had been out in a wood getting timber, when a shell came falling at some distance, about a hundred yards from him. He said he would not have minded it had it not been for the dead lying in the wood, he having just picked up a human head which in the dark he had mistaken for a piece of wood. The shell did not knock him down. He fell among the dead and remembered no more until he found himself running out of the wood, whereupon he again lost consciousness, on recovering which he found two stretcher-bearers helping him, with whom he returned.

The patient was a big burly fellow. He complained of pains in the back. On questioning him, he told me that he had had exactly the same pain 18 months previously when he was hit in the back while at work in a coal mine, and had been obliged to rest for 14 days.

It is clear, then, that such past injuries and diseases had not passed away without leaving a "memory" behind them, ready to be awakened, not necessarily with recognition, on a subsequent shock to the mental system. I may add that I have met with similar revivals of other past disorders after shell shock.

Spontaneous Spread of the Disorder.

In many cases (e.g., Case 12) the anæsthesia spontaneously cleared up, without any suggestion and despite occasional examination. But in a few instances evidence was forthcoming of a gradual spread of the subjective sensory disorder and an increase of the insensibility to pain after its first onset. For example:—

CASE 14 (Case-number 129).—Stretcher-bearer, aged 44, with 11 years' service and 2 months' service in France. Was admitted into a base hospital and seen by me there eight days after reporting sick. He stated that three days before this, while sheltering in a cellar, a shell jammed the door and that poisonous fumes from it entered the cellar. Later in the day in another cellar he was blown off his seat by a shell and his "surgeon and five men got laid out." That day and the two following days he was continuously shelled and he "worked at the wounded without any rest," afterwards returning to his regiment. Then he lay down, but on waking found himself useless in the left arm as if there was "something wrong with the circulation," it "feeling numb and cold." This persisted, but *the numbness had since spread* to the legs, especially the left. He complained of continual tingling in the terminal joints of the fingers of the left hand. There was distinct *hypalgesia* over both forearms and hands, especially on the left limb; over the dorsum of the left hand there was total analgesia.

Two days later the patient said: "I can now feel articles I am touching. I couldn't before. They are only numb now in the early morning. The tingling comes on when the numbness is passing off." But on the same day the hands and forearms showed a *total loss of sensibility* to pain everywhere save over a small area on the flexor surface just below the elbow-joint.

The Effects of Protracted Examination.

Improvement.—In the case just narrated the second occasion of examination showed a more severe loss of sensibility to pain than had been found on the first. Often, however, especially in those cases in which a spread of defective sensibility had occurred, a distinct improvement could be brought about by examination, provided that it was long enough continued at any one sitting. Thus one patient, after being blown over by a shell and later frightened by another, developed hypæsthesia and hypalgesia over the left side of the chest down to the nipple line, over the left arm down to the elbow, and over the forehead especially on the left side. The first few pin pricks applied to his face were unfelt, the next were described as my finger nail, but finally they produced a definite sensation of pricking pain. On the following day he felt far less shaky, his hands had almost lost their

previous tremulousness, his pupils were less dilated, and no difference in sensibility could be distinguished between the two sides of the chest and the two arms. Other cases showed similar recovery during examination. One patient, for example, who by his bravery had won the Distinguished Conduct Medal, showed very marked hypalgesia and slight hypæsthesia over the left arm, and slight hypalgesia over the right arm; but after a series of deep pricks which were felt, the arms regained their normal sensibility. In another case light touches over the right thigh and buttock tingled more, and pricks over the right leg stung more than on the left side, and the skin over the lumbar spines was almost totally anæsthetic to light touch and stung more to prick; but after an examination of the normal surface of the skin higher up on the back, the lumbar region recovered its sensibility.

Deterioration.—On the other hand, certain cases in the course of prolonged examination showed deterioration in sensibility. Thus in one patient the bilateral differences became more marked, a state of hypalgesia becoming apparently one of analgesia, the subject being at length unable to distinguish (almost solely on the affected side) between the head and the point of a pin. This deterioration often appeared to result from the onset of a "jumpy," "nervous" condition, a state of mental confusion occasioned by the examination.

Perseveration.—Yet another change in the answers obtained during investigation was the outcome of perseveration—i.e., of persistence of response. In one patient, for example, who had suffered from stupor and mutism consequent on shell shock, the flexor surface of the left forearm and palm were "hyperæsthetic" and "hyperalgesic," and the left side of the forehead and *chest* were "*hyperalgesic*," while over the back of the neck and over both scapulæ (where the patient complained of pain) a state of complete anæsthesia prevailed. This order was that in which the examination was at first carried out. Yet when later the applications of cotton-wool and pin were begun over the back of the neck and shoulders and extended on to the chest, the condition of *anæsthesia* was found to spread over *both sides of the chest* down to the nipples, the left arm remaining in its former condition. These three features, of improvement through experience, of deterioration through mental confusion, and of perseveration, are well exemplified in the two following cases.

CASE 15 (Case-number 332).—Private, aged 23, with 5 years' service and 5 months' service in France. Was seen by me the morning after admission to a casualty clearing station, having been buried a few hours before admission by a shell while he was in a dug-out. He said that he had come to himself shortly before my visit and had no recollection of being moved here. He was alone in the dug-out when it was shelled. He admitted to having "felt very bad lately" owing to the depth of water in the trenches, and was recently kept back for two or three days for observation by his regimental medical officer before being sent back to the trenches. His general appearance, I find recorded in my notes, was that of one "who has control over a stormy sub-surface which might at any time get the upper hand and result in an hysterical attack." He complained of headache and of buzzing noises in the ears. The pulse-rate was 96. The visual fields were distinctly restricted. The palatal reflex was absent. A jaw-jerk was present. The patellar and plantar reflexes were normal. He stood unsteadily, especially swaying when his eyes were shut. He showed no tremor of the hands or tongue. His left arm was anæsthetic to light touch. He could not distinguish the point from the head of a pin applied to his left arm. When it was pricked he said that my finger was pressing. The right arm showed normal sensibility; but at first, over the right biceps, he momentarily carried over the immediately preceding answers of the opposite side, unable, but only for a few seconds, to distinguish the head from the point of a pin. On a subsequent re-examination of the left arm continual pricking resulted in a recovery of sensibility to pain over the flexor surface of the forearm, and at length the back of the hand became sensitive to light touch; but on the extensor surface of the forearm and elsewhere on the limb nothing whatever was felt. The forehead and cheeks were rather more sensitive to light touch on the left side, but pain was felt equally on the two sides. At first he said that the left side of the chest was more sensitive to prick than the right, and then he carried this difference over to the upper arm until the forearm was reached. Whereupon the difference of sensibility became reversed, the right forearm alone feeling the pain as before. This reversal to his previous answers persisted as the pricks were continued upwards over the upper arm, until on re-examination of the chest he declared that there was no difference between the two sides, either for light touch or for prick. The rest of the body showed no disturbance of sensibility.

CASE 16 (Case-number 46).—Corporal, aged 39, admitted in a very depressed condition into a base hospital after working under shell fire at barbed-wire entanglements, complaining of noises in the head, pricking pains in the body, unsteadiness of the legs, general fatigue, irritability, and loss of confidence and want of interest in his work. The patient was a big, robust-looking man, showing very tremulous movements of the arms and legs, especially during movement. His gait appeared normal, but he stood very unsteadily with his eyes closed. "I'm strong enough," he explained, "but only a bit shaky. My legs have been very unsteady, especially when someone is looking at me. They must have thought me drunk at times." He showed a pronounced inability to touch any prescribed part of the body with his eyes shut. His head and tongue were very tremulous. The pupils were equal and reacted normally. The knee-jerks were exaggerated; no ankle clonus; plantar responses flexor. The patient volunteered the statement that "when I stand, it feels like standing on cotton-wool." His soles proved to be totally insensitive to light touch and to pain; sensibility to deep pressure was retained. But further trials, especially when aided by comparison with the effects of stimuli applied to the dorsum of the feet, resulted in the gradual return of right answers. Tested with warm and cool tubes, he at first called both the tubes "cold" when applied to the soles, and he gave generally wrong answers over the dorsum of the feet, often wrong answers over the legs, and occasionally wrong answers over the thighs. Yet over the arms he was invariably correct, and when stimulated to attend by such injunctions as "Now, O——, attend well, you know what this is," he gave correct answers over the legs and dorsum of the feet and usually over the soles. But in the course of further examination his legs became very markedly tremulous, "a silly childish fear came over me" (as he explained it), his hands began to "feel cold and clammy" and, at the height of this "attack," he replied "hot" or "cold," even when the tubes were not being applied at all to his skin, evidently suffering from hallucination. So, too, a few hours later, during reinvestigation of the sensibility of the soles of the feet to pain, he finally repeated, "You're pricking me," when the pin's head was applied instead of its point. When the compasses were applied to the dorsum of the left foot (sometimes two points, sometimes one point being presented in irregular order), his answers to the two-point touches, when separated by 4 cm., were all correct. At 3·5 cm. he made one error in ten two-point touches. At 3 cm. his answers became very incorrect. Returning now to the distances of 3·5 cm. and of 4 cm., I obtained extremely incorrect replies for the two-point touches; at 5 cm. his replies were correct for the two-point touches, but he made occasional mistakes in the one-point touches (as he had done at the outset), when the two points were separated by 4 cm., whereas he had made none for the one-point touches, when the two points were separated by distances of 3·5 cm. and 3 cm.

I have seen several other cases showing the effects of perseveration, improvement with practice, and deterioration through confusion, inattention, or fatigue. In all the cases showing perseveration and in all showing improvement with practice there was evidence of exhaustion preceding the shock. Now it is especially in such

cases that we should expect to find a state of instability in those portions of the central areas which have been functionally affected by the shock, the inhibition or the loss of control being at one moment manifest, at another inappreciable, according to the conditions of examination. In these and in other cases it is conceivable that certain cutaneous areas are hence in a state of "hesitating" sensibility, on a knife-edge, as it were, ready to be influenced in one or other direction by the past replies given to stimuli applied elsewhere, by the summation effects of stimuli, by unconscious suggestion on the part of the investigator, or by express counter suggestion on his part. Thus we may account for the occasionally wide variability of replies, with which I have met, made by the same patient (1) at any one sitting (one apparently honest fellow, for example, when brought to book for his inconsistent replies retorting, "All I can say is what I feel"), (2) at different sittings with the same, or (3) with a different, investigator.

None of the cases showing deterioration in replies through confusion, hallucination, inattention, or fatigue was under treatment for purely the immediate effects of shell shock. Two of the cases have been already described (Cases 11 and 16); another was that of a sergeant who had previously been invalided for overwork to England, three months after his return from which he fell to the ground during a bombardment when two guns close to him were blown out of action; since then his legs had been feeling weak, but he had "managed to keep going on light duty" for two months before he finally reported sick and came under my observation.

Such phenomena are especially liable to occur when to the effects of shock conditions of previous long-continued anxiety and nervous exhaustion are superadded. That is to say, they imply a certain instability of cerebral activity; and in this connexion it is noteworthy that the liability to mental confusion, inattention, fatigue, and hallucination, and the tendency to perseveration, occurring in the above-mentioned cases, are the very symptoms observed by Head and Holmes[4] as the effects of cortical injuries.

[4] Op. cit.

MENTAL AFTER-CARE ASSOCIATION.—The annual meeting of this association, which assists poor persons convalescent or recovered from institutions for the insane, was held on March 1st at Dr. Williams's Library, Gordon-square, by invitation of Dr. Henry Rayner, chairman of the association. The opening address was given by the Right Rev. Bishop Ryle, Dean of Westminster, who presided. Dr. Rayner read the report, showing a satisfactory increase of the work during 1915, and also the improved financial position of a charity which does work untouched by any other philanthropic body. Several typical cases were quoted which proved the varied scope of the work and the untiring efforts of the staff who labour to help those who have been mentally afflicted to make a fresh start in life. The council expressed deep regret at the resignation through ill-health of Mr. H. Thornhill Roxby, who had acted as secretary for 29 years. Miss Vickers, who had worked as assistant secretary for some years, was appointed to succeed him. Dr. R. Percy Smith seconded the adoption of the report, and Mr. A. O. Goodrich, chairman of an Asylums Committee of the London County Council, spoke on the value of the work from the point of view of the Asylums Board. The re-election of officers was proposed (in the unavoidable absence of Sir Frederick Needham) by Dr. R. Armstrong-Jones, medical superintendent of Claybury Asylum, and seconded by the Rev. F. H. A. Hawkins, son of the founder of the association.

SOME NOTES ON THE TREATMENT OF THE TURKISH WOUNDED FROM THE SUEZ CANAL.

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EARLY in January, 1915 the long-threatened invasion of Egypt by way of the Sinai peninsula appeared to be materialising, and preliminary arrangements were at once made in Cairo to provide for the Turkish wounded, whom it was expected would arrive in considerable numbers from the Suez Canal. Kasr-el-Ainy was selected as the general base hospital, and by limiting the local admissions to accidents and urgent cases several wards were at once left available for any wounded that might be sent on to Cairo.[1] As it became increasingly evident that an attempt would certainly be made to break through the line of defences on the Canal, the hospital was subsequently cleared of all its patients and everything prepared for the reception of wounded at a moment's notice.

The most severe fighting took place on Feb. 2nd and 3rd, and after the wounded had been collected by the Royal Army Medical Corps attached to the British forces, they were attended to at the clearing hospitals at Port Said, Ismailia, and Suez, and thence despatched by hospital train to Cairo. On their arrival they were brought to the hospital by the excellent Australian motor ambulance fleet. A careful examination was then made of every individual, and notes of their present condition taken by the registrars at the dictation of the surgeon in charge, who at once proceeded to take the necessary measures for their appropriate treatment.

The men generally were in good condition, and not by any means starving as had been anticipated. It had been a record year in the peninsula with much rain and plenty of green feed for camels and transport animals, and water in abundance in the valleys. The food consisted largely of a hard satisfying biscuit, and the men, though very dirty and dusty and travel-stained, showed very few signs of having encountered any real hardships on their trek across the desert, which on this occasion belied its reputation and was intersected with beautiful green valleys and "blossomed like the rose." Their equipment, too, was wonderfully complete and practical. Each man carried a book of identification, a "housewife" (containing needles, thread, buttons, &c.), soap, tooth-brush, and even a small copy of the Koran. They were also provided with first field dressing. Many of them being recruited from Syria spoke Arabic to some extent, and most of the officers had some knowledge of French and acted with some of our own students as interpreters in Turkish. In this way we had very little difficulty on the question of language. The men were all very grateful for the attention they received and we never had the least trouble with them from a disciplinary point of view.

[1] It is interesting to note that this is not the first occasion in its history that Kasr-el-Ainy has been commandeered for military purposes. The French turned it into a military hospital during Napoleon's invasion of Egypt (1798-1801), and here the great Larrey, who was Napoleon's chief surgeon, studied an epidemic of fever, ophthalmia, scorpion stings, and many other diseases in 1800. Later, in 1825, Clot Bey, another ally, came from Grenoble and was surgeon-in-chief to Mohamed Aly Pasha's army, and, after first establishing a hospital near Abu-Za'abel (close to the present wireless station) transferred it to Kasr-el-Ainy in 1837 and continued it as a military hospital for some years afterwards. (Sandwith, History of Kasr-el-Ainy, A.D. 1466-1901.)

All the fighting took place on the eastern side of the canal, which is sheer desert without any cultivation whatever, and thus the conditions for the healing of wounds were primarily favourable. The wounded were left lying for a variable time on the desert sands, both on account of the difficulty of finding them—the area of battle extended over a considerable length of country—and the presence of wandering bands of the enemy. Those who were early found and treated at once by first aid and then quickly transferred to hospital and promptly dressed did very well as regards sepsis; those who had been lying for 24 hours or more—some even up to four or five days—before being picked up did badly, as did those who could not be dressed regularly from stress of work in the clearing hospitals during the first rush. These cases invariably suppurated.

The degree of sepsis varied very much. Probably the worst case of the whole series was that of a patient who had a large compound fracture of the thigh, and who had been left three days in the desert before being found, and then sent on to Cairo. He had a very high temperature of a virulent septic type, with intense septic jaundice and violent nocturnal delirium. He started a rapidly spreading cellulitic infection all round the wound which soon spread upwards, in a septic rather than a gangrenous way, and died two days after admission. Another, with a perforated bullet wound right through the upper end of the tibia, started more insidiously but rapidly got worse, his sepsis evidently originating in a primary focus of osteomyelitis in the cancellous tissue of the head of the bone. Others became badly septic quite suddenly a few days after admission, either from decomposing blood clot in the depths of the wound or from a primary spore infection which took some days to develop. A few such cases became rapidly gangrenous, the patients dying within 36 hours of the onset. In most cases, however, the septic wounds yielded very well to treatment, though it was impossible to guarantee the result till complete healing had been restored.

The great majority of the injuries were bullet wounds, with a few shrapnel injuries and only one bayonet wound—in an Indian who was on the pilgrimage to Mecca, but was seized by the Turks and forced to fight with them.

General Lines of Treatment.

In clean cases in which the bullet had passed straight through the part the entry and exit wounds were painted with iodine (2 per cent. in rectified spirit) and dressed with double cyanide gauze and sterilised dressing. The track was left severely alone. When either wound was large or ragged iodine was poured in and a small piece of cyanide gauze used as a packing till the wound granulated up. The more severely lacerated and dirty wounds were enlarged by free incisions and good drainage by tubes or light packing provided. Only very rarely was the track itself incised, and then only to provide exit for pus which had collected. In wounds without an exit the track was well opened up, thoroughly cleaned, and iodine was then poured in, or it was washed out with cyllin (1 in 200). A tube was then inserted or a packing of gauze, either soaked in oxygen water or in balsam of Peru, according to the following formula: Eucalyptol, guaiacol, iodoform, āā 10·0; balsam of Peru, 30·0; ether, 100·0—and this in our hands proved very satisfactory.

Very bad septic wounds with much loss of tissue were treated with cyllin fomentations and cyllin baths or with frequent irrigations with cyllin lotion and packed in the intervals with gauze soaked in pure oxygen water (12 volumes to the litre) or in balsam. Carbolic was unobtainable in Egypt at the time, and had it been procurable we should not have used it as we were more than satisfied with the cyllin, particularly as copious irrigations or baths, balsam of Peru, and oxygen water. To convert a dirty wound to a healing sore, or to clean up dirty tracks, the balsam preparations did excellently, and later red lotion and scarlet red ointment, 5 per cent. in vaseline, were invaluable.

Bullet wounds of the head.—There were several cases of head injuries of varying severity. The milder cases included many long scalp wounds involving the skin and subcutaneous layers, but not opening up the deeper dangerous areas. These healed quickly, but the deeper wounds, notably over the temporal fossa and in the supra-orbital region, though they remained clean were very slow to heal. When still deeper, and especially with entrance and exit wounds in close proximity, an exploratory incision was always made, and it was frequently found that the bullet had not only grazed the bone, but had also produced a depressed fracture of the gutter or pond variety. However slight the external injury to the bone, trephining was done, as so often there is much splintering of the inner table, and in a certain proportion of cases injury to the brain and its membranes. We never had cause to regret this radical method of treatment, but adopted it as a routine with eminently satisfactory results.

We had four cases of complete perforation of the head. In one case the bullet entered in front, just to the left of the middle line through the parietal bone, and came out through the right occipital. In this, as in all others of a similar nature, the wounds of the soft parts were enlarged at each opening. The opening in the skull was cleared by the removal of all loose pieces of bone, and, if necessary, still further enlarged by rongeur forceps to provide as free a vent as possible. This particular case did well for 14 days and then developed hemiplegia, and on reopening the wound an abscess was found deep in the wound and involving a good deal of broken-down brain tissue in the motor area. The patient improved to some extent, but on his transference to the Red Crescent Hospital the hemiplegia was still present and was likely to remain.

In another case the entry wound was in the left temporal region and the exit above the upper margin of the right external angular process. The same treatment was adopted as in the case just narrated, and the wounds healed well and cleanly; but the patient was quite blind, the optic nerves having been completely divided in the track of the bullet. Another bullet ploughed through the anterior third of the left eye, bored a hole through the bridge of the nose, and then passed straight across the cornea of the right eye and out through the lid. The left eye was quite disorganised and the right globe was burst, but the wounds themselves healed well. One bullet entered by a tiny opening just above the inner canthus of the left eye and was removed from the muscles of the back of the neck to the right of the middle line behind. The bullet was hardly scraped at all and the patient recovered completely with only a little traumatic ethmoiditis and laryngitis. At one stage of his convalescence he had some hallucinations,

but these were not at all serious and were probably largely assumed for the benefit of the students. One negro had a similar wound in the upper occipital region, and on exploring we found a tightly wedged depressed piece of bone projecting into the lateral sinus. Severe bleeding followed its removal, but this was easily controlled by pressure and the wound was left packed. All went well for a week and no further hæmorrhage had occurred when the patient suddenly got a temperature of 40° C. and death took place on the next morning. Post-mortem examination revealed a very extensive laceration of the brain posteriorly, and much old blood clot under the dura mater, but it is not easy to understand why the patient died so suddenly.

Of the other fatal cases of head injury one had a very extreme extensive bullet wound involving the greater part of both occipital lobes. The bones were hopelessly smashed and the brain pulped beyond hope of repair. All the fragments of bone were removed and the patient lived for several days, quite unable to speak, but conscious until near the end, which came rather suddenly with symptoms of septic meningitis. Another patient injured in the same region had absolute blindness and died from an obvious basal meningitis. There was only one severe case of hernia cerebri, and it terminated fatally.

Perhaps the most interesting of all the head cases was one in which a bullet entering the right cheek had torn up a great deal of the soft palate and uvula and passed out through the left cheek. On admission the patient had acute dyspnœa with marked œdema of the uvula and probably of the larynx also. Tracheotomy was immediately performed with great relief. All the acute symptoms passed off, the tube was removed, and for ten days all was well. Then difficulty in speaking was developed, with ataxia, paresis, and finally hemiplegia of the left side, and all the symptoms of a pontine tumour. There was a gradual improvement with large doses of iodide, and on his discharge the patient was able to walk badly and still had signs of a basal brain lesion. In another somewhat similar case the patient was more fortunate, making a good recovery after a severe smashing of the upper jaw and palate; as did also a case of extensive destruction of the bone all round the outer part of the right eye, but fortunately without any penetration of the cranial cavity or injury to the contents of the orbit.

Wounds of the thorax.—There was a good variety of cases of this kind. Some of them showed no signs of internal injury whatever, although the bullet had obviously passed straight through the lung, and in one case the upper part of the pericardium must have been pierced. The majority of these cases had all the usual symptoms common to perforating wounds of the chest and nearly all developed hæmothorax. One fatal case had a large opening to the left of the sternum, in the fourth interspace, through which, when he breathed, the air whistled with considerable force and noise. He was altogether too septic on admission to hope for any other result. Another patient died from heart failure, with severe cough, which nothing seemed to relieve, and which continued after the pleural cavity had been evacuated of all the blood it contained and free drainage had been provided.

We came to the following conclusions in the management of chest cases.

If the case is doing well let well alone and do not interfere more than to provide the most comfortable position for breathing. This is often sitting up in bed or in a chair with the head resting on a pillow on a bed-table. In these cases the rest of the treatment is entirely symptomatic and is directed towards controlling the cough or restlessness and providing sleep.

If the hæmothorax and the dyspnœa are increasing aspiration should be done, and repeated as often as necessary, provided that the temperature remains normal or only slightly elevated.

If the temperature rises with an increasing dyspnœa, and especially if it has or assumes a septic type, excision of rib must be done at once and free drainage provided. It is hardly ever necessary to wash out the pleural cavity after this operation, as once adequate drainage is secured the local condition rapidly improves and the general symptoms of septic infection disappear. In two cases where the hæmothorax was very large and was producing cardiac displacement the blood was evacuated, after excision of rib, with much relief to the dyspnœa; but a mild degree of septic infection occurred within the pleural cavity, and the convalescence was unduly prolonged. These two cases confirmed our opinion that such effusions into the pleural cavity should not be treated more radically than by aspiration unless a septic temperature affords definite evidence that suppuration is impending. We were able to prove this contention still more definitely by examining the fluid withdrawn by a fine hypodermic needle. Cases doing well invariably gave a sterile culture; but with an increasing dyspnœa—due to the onset of a septic inflammation in the pleural cavity—even before the temperature chart took on a septic character, we always found streptococci, frequently with pneumococci, in the cultures. It became our custom in all but the absolutely straightforward cases to give repeated doses of stock pneumococcus vaccine (Wright).

The foregoing remarks apply only to cases in which the wound has been very small and has completely healed without suppuration; but it is, of course, entirely otherwise when the track of the bullet is still septic and opening into the chest cavity. Here we have to deal with a septic penetrating wound of the chest, with or without hæmothorax, and treatment follows the usual lines. The importance of providing free and counter drainage in such cases need hardly be insisted upon.

Fractured ribs were not at all common, except as part of a penetrating wound of the thorax, and gave some trouble from subsequent necrosis.

Wounds of the spine.—Fortunately we had only two cases of bullet wound of the spine. One man was struck quite high up in the dorsal region by a bullet, which also penetrated his chest, and he died with all the usual symptoms of a divided spinal cord, though at first his spinal symptoms were so mild as to make us hope it was simply concussion. The other had his injury produced by the explosion of a clip full of cartridges, which made a gaping hole in the lower dorsal region with complete paralysis below it. He was already very septic on admission and had no chance. A somewhat similar case had very extensive smashing of the sacrum, opening up the lower end of the spinal canal, and he, too, soon developed a septic meningitis with its inevitable ending.

Wounds of the abdomen.—Only one case of abdominal wound reached us, and the interest in the case was that the patient was labelled from the clearing hospital in which he was first seen as "apparently cured." On his arrival, however, after

his train journey and subsequent transport, he had all the signs of septic general peritonitis. Operation demonstrated the peritoneal cavity to be full of fæces, recent food, and pus, there was a large perforation of the small intestine, which was resected, and probably several other perforations also, and a large quantity of decomposing blood. The patient lived for 36 hours after drainage, but his case was hopeless from the beginning. Another man had the mark of a bullet over the splenic area, but was in a condition of such extreme shock that nothing could be attempted before he died. The necropsy showed no sign of bullet wound of the abdomen and death was entirely due to shock. Several other bullet wounds, individually not serious, were found in other parts of the body, but the peritoneal cavity and its contained viscera were entirely free from any wound.

Wounds of the shoulder and upper limb.—At one stage in the fighting a number of Turks were caught between two rows of trenches disposed almost at right angles to each other and, being thus enfiladed, many received oblique wounds across the shoulders or through one side of the chest and the upper arm. Among these cases the most interesting may be briefly mentioned. One man was hit, possibly by a shrapnel bullet, in the middle line of the spines behind. The bullet apparently split, and a deep track ran outwards above each spine of the scapula, and fragments of fractured scapula were found in each wound. After opening up the tracks freely and applying constant fomentations the primary sepsis was controlled and the case did very well. In several cases the acromion was fractured and in one of these the bullet traversed the chest beneath and fractured two ribs on the same side in its exit. One bullet missed all the bones about the shoulder, but evidently caught a part of the brachial plexus, with paralysis of the left deltoid and biceps. Fractures of the upper end of the humerus were best treated by a pad in the axilla and fixing the arm to the side of the chest without the use of any splint. When lower down in the shaft of the bone, whether simple or compound, we had our best results and made the patient most comfortable with Major Robert Jones's rectangular or straight arm-splints. Only one case of compound fracture of the humerus was plated, and it served as an excellent object-lesson as to how not to do it; for the bone was found so comminuted and brittle that no screws would hold and eventually a wire had to be placed round the fragments. No further operations of the kind were performed and this was only done in the hope of temporarily holding the fragments in position. Extension on the straight arm-splint did all that was required, and the result was a very good one. With these two splints and the occasional use of a Middeldorf splint with extension we were able to deal with all our cases quite satisfactorily.

One case of a deep shrapnel wound in the substance of the pectoralis major was interesting because of the association with it in the same patient of a long bullet track in the thigh, which had opened up the intermuscular planes for a considerable distance, though the bullet itself was removed near the upper end of the track. This was evidently an instance of splitting up along fascial planes between muscles by the cone of air projected in front of the bullet.

Some bullets were lodged in the axilla, especially along the axillary border of the scapula, and these cases showed the fallacies in X ray photography in attempting to localise a bullet from a single plate. In one case of this kind the bullet appeared to be at the upper end of the axillary border, but was found firmly imbedded between the axillary artery and vein in mid-axilla.

Wounds about the elbow varied much in severity. Perforation of the lower end of the humerus generally led subsequently to impairment of movement of the elbow-joint and was very painful. The olecranon and the head of the radius did not escape, but with these injuries the end-results were fairly satisfactory. Fractures of the bones of the forearm were common, but presented no special peculiarities except for the explosive effects sometimes produced. Two cases in which a bullet completely traversed the wrist did very well, with some swelling of the joint, but with very good and ultimately perfect movement. The metacarpal bones were often severely smashed. In the worst cases the victim was actually holding the end of the rifle when it was fired.

Bullet wounds of the pelvis and lower limb.—Whenever a bullet is localised in the pelvic cavity and is doing no harm it is best left alone. This, in our early days, was brought home to us when we were tempted to make futile search for such a phantom. When a buried bullet is exercising pressure on a nerve, or producing pain or disability from its presence in proximity to important structures, an *attempt*—and I use this word advisedly—should be made to remove it after having its position localised by the best means at disposal. It will not always be found even then, and care must be exercised lest this "carnivorous" surgery be pushed to a dangerous extent. One of the best of our cases was that of a penetrating wound in which the bullet had gone through one buttock, straight across the pelvis, and out through the other. Blood and fæces were draining from each wound, and an examination of the rectum showed a large tear in each lateral wall. The external wounds were well opened up and drained with tubes and a large tube was placed in the rectum, extending well beyond the wounds in the wall. The patient was then put to sit in a bath for some hours at a time and did well, but had much pain in the rectum. This was at once relieved when the external sphincter was divided, and he continued to do well and recovered completely. The question of an inguinal colotomy was discussed, but improvement was so rapid after the division of the sphincters that nothing further was necessary.

Two cases of deep wounds into the iliac fossa, which fortunately were extraperitoneal, did well when the wounds were opened up and allowed to drain of themselves without a tube, but with a light packing of gauze soaked in balsam.

Some very extensive fractures of the femur were met with. In a certain number the wounds healed without any sepsis, and a Thomas's knee-splint was then applied with fixed extension and proved most satisfactory, even in cases where there was considerable comminution. In compound cases this also proved to be the most satisfactory splint, both before and after operation. Free incisions were made whenever there were any threatenings of gangrene or sepsis, and only the very much splintered and completely separated pieces of bone were removed. One patient died from gangrene and another from virulent sepsis. The best case of the series was one in which there was great comminution, the bone being splintered to such an

extent as to give the sensation of emphysematous crackling. This on investigation by incision turned out to be caused by the presence and rubbing together of tiny pieces of broken bone in a bed of blood clot. Nearly three inches of the pulped shaft of the femur was removed, but fortunately a long splinter of bone projected from each fragment and nearly touched posteriorly. By free drainage, fixation on Thomas's knee-splint, and repeated packing with the balsam dressing an excellent result was obtained and quite a presentable femur remained. All cases in the shaft of the bone were treated on these principles and open splints, more particularly Hodgen's, Mothersole's, interrupted Bryant's, and, better than all, Thomas's knee-splints, were called upon. In difficult cases prolonged and sufficient extension was most essential. In fractures of the lower end of the bone much the same tactics were employed, and in one case with a penetrating wound of the knee-joint frequent irrigation with cyllin lotion proved very satisfactory.

Injuries to blood-vessels were conspicuous by their absence, the only one of any importance being that of a very large hæmatoma of the thigh, which eventually had to be opened and the profunda femoris tied. The hæmorrhage here had been very extensive, and unfortunately the case terminated fatally shortly after the operation.

One other case of compound fracture of the tibia and fibula became very septic and developed a traumatic aneurysm of the anterior tibial artery which rapidly increased in size and began to bleed. Before anything radical could be done emphysematous crackling occurred and a rapidly spreading and fatal gangrene supervened. A case of perforating wound of the tibia became acutely septic and ended in a very severe septic dysentery, and finally general septicæmia which resisted all treatment.

We had one successful case of gangrene in a fractured tibia and fibula in which crackling came on quite unexpectedly and this was saved by very prompt and vigorous incisions, drainage, and cyllin irrigations. Most cases of this variety of gangrene, however, once the process had really set in were rapidly beyond all surgical treatment.

Injuries to nerves were uncommon, the posterior tibial and the external popliteal being the only two nerves involved, except for one case of ulnar concussion.

Wounds of the metatarsal bones were very rare. Penetrating wounds of the larger tarsal bones were very painful and became very septic, probably from the large amount of soft cancellous bone liable to infection. Especially was this the case in wounds of the heel. Apart from these slighter injuries there were several very severe and septic smashes of the foot opening up the ankle-joint. Two of these required amputation for advancing sepsis and among them were two fatal cases.

In all 210 cases were admitted, and of these 102 were subsequently discharged to the prisoners' camp and would have been fit for duty. When at a later date the accommodation was required for British wounded from the Dardanelles the work of caring for the Turkish wounded was taken over by the Egyptian Red Crescent Hospital, who have done excellent work throughout. 88 cases were transferred to this hospital, and nearly all of these must be considered as unfit for further duty. Of our series 18 patients died, being a mortality of 9 per cent.

Cairo.

THE TREATMENT OF HÆMORRHOIDS BY INJECTION.

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INTEREST in this valuable method of treating internal hæmorrhoids was reawakened about a year ago by an article by Sir James Goodhart,[1] in which the advantages of this treatment were extolled and a lurid (not to say biased) glare was thrown upon the evils of the more radical operative treatment, stress being laid upon the occasional failure of the latter. A subsequent series of articles[2] by various rectal surgeons served to put the advantages and disadvantages of the two methods of treatment into a truer perspective. In spite of the prominence given to the subject in this way, I find that the majority of medical practitioners are still ignorant of the fact that there is such a thing as the treatment of piles by injection; that the general belief is that the mild cases of piles are to be treated palliatively by local applications, laxatives, diet, &c.; and that when a patient's life is made a misery to him in spite of this treatment, the only thing left for him is operation—a proceeding of which the average patient has a quite disproportionate horror.

Since I have had the advantage of acting as surgeon to out-patients at St. Mark's Hospital at the beginning of the war, a very large number of cases of hæmorrhoids of all degrees of severity have passed through my hands. At first I practised injection only on what may be described as medium cases, in which there was very moderate and occasional bleeding, slight prolapse which was spontaneously reducible, slight pain during defæcation, &c. The number of beds at the hospital is very limited, and the war has caused increased pressure upon them; the result was that the list of hæmorrhoid cases awaiting admission was of considerable size, and many cases that I had considered needed operation were waiting sometimes months for a bed, and were suffering from perhaps moderately severe hæmorrhage week after week, or from other troublesome symptoms which ordinary "palliative" treatment failed completely to relieve. I was led by this to try the injection treatment on more severe cases, and found that in an enormous majority of them all symptoms ceased like magic after a few injections, although in the more severe cases the piles were still seen on examination with the sphincteroscope. Still more surprised was I to find that in very many cases, which I had previously thought obviously needed radical operation, not only did the symptoms disappear, but no trace of the piles could be found on even the most careful visual and digital examination. Thus it happens that for a very considerable time I have been treating a large number of cases by injection, and have been extremely pleased with the results; and so have the patients, especially those who had come to the hospital for admission and operation after months or years of palliative treatment of other kinds. The treatment, however, is by no means a new one, and I claim not the slightest degree of originality for it. It was first brought to the notice of surgeons in this country by Mr. Swinford Edwards in 1888, but

[1] Practitioner, December, 1914.
[2] Ibid, March, 1915.

though it has been employed by him and by a few other rectal specialists since that time it has never become very generally known either by the rest of the profession or by the public. The little operation requires a considerable degree of practice to perform properly; the cases need a certain amount of selection (indeed, a very great degree of discrimination must be employed if one is going to promise a long degree of immunity to the patients); it also needs a few special instruments, and, above all, a very good light. With these reservations it is a treatment that would well repay surgeons, and even general practitioners, for a careful study.

The obvious advantages of the treatment are: (1) that the patient need not lie up for more than at most 24 hours; (2) that there is no need for either general or local anæsthesia, since the treatment is practically painless, if properly performed; (3) that it can be made quite inexpensive, so much so, that it may be brought within the reach of even a quite poor patient, who certainly could not face the expense of an operation in private; (4) that it is a perfectly safe procedure in patients, such as the very aged, pregnant women, and others who for some reason cannot take an anæsthetic safely, such as persons with dangerous heart or lung diseases; (5) that there is no after-pain; and (6) that it is, as far as I have seen after employing it in a very large number of cases, invariably harmless.

The treatment is not suited to cases of strangulated or irreducible hæmorrhoids, nor to cases in which there are other complicating conditions, such as old-standing fissures, fistulæ, ulcers, &c. In this connexion I would remind my readers that the presence of obvious piles by no means contra-indicates the presence of other rectal lesions, and that a full and complete examination must be made in every case before concluding that all the symptoms are due to the piles. During my absence from the hospital on one occasion the then house surgeon, who had become a rather enthusiastic advocate of the treatment, injected some piles in a man aged 45. When I saw the man the following week his main complaint was that in spite of the treatment the diarrhœa which he had suffered from had not diminished, though the hæmorrhoids no longer prolapsed and the bleeding was less. The history of diarrhœa aroused my suspicions, and on making an examination with the sigmoidoscope I found a large mass of carcinoma high up in the bowel. The injection of the piles had done no harm, but the real nature of the case had been overlooked.

Another class of case in which the treatment cannot be expected to cure is that in which the hæmorrhoids have become partly polypoid and fibrous from previous attacks of thrombosis. In such cases one is dealing in reality with a solid growth, and it is unreasonable to expect that injection of carbolic acid will bring about the disappearance of fibrous tissue. But even in these cases it may cause the bleeding to cease, and relieve the patient of a large part of his trouble while awaiting the operative treatment that is indicated.

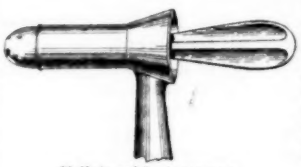
Now, as to the question of recurrence after the treatment, I confess I have not practised the treatment for a sufficient time to give a first-hand opinion of any value on this point. But I have watched a considerable number of cases for well over a year, and only know of two cases in which there has been the smallest return of troublesome symptoms. In those two cases the patients returned asking me to reinject their hæmorrhoids, scouting the idea of operation, provided there were any prospect of going another 6 to 12 months without further troubles, even if the injection had to be repeated a third time after that interval. Other surgeons who have had a larger and more prolonged experience of the treatment than myself have told me that in the vast majority of *suitable* cases it is safe to promise the patient that he will be free from symptoms for at least three years; that, if he has a recurrence after that time, the treatment may be repeated and another three years' immunity from symptoms obtained. And mark well that in the intervals no further troublesome treatment by ointments, lotions, suppositories, or what not is required; and this is a very great point, because all these other forms of palliative treatment are messy and troublesome. The only adjuvant treatment that is necessary is the use of some mild laxative—in fact, to warn the patient against the evils of constipation.

The treatment consists in the injection into each internal pile of a few drops of carbolic acid and glycerine. The solution I employ, and which I find by far the best, is:—

Acid. carbolici	gr. xlviii.
Glycerin.	dr. ii.
Aquæ destillat.	dr. ii.

This is a 20 per cent. solution of carbolic acid. I find that the amount which should be injected into each pile varies from 2 to 6 minims of this solution. Great care must be taken not to inject too much, otherwise it is possible to produce slight sloughing; this is not a serious matter in itself, but it causes decided pain, and thus removes one of the great advantages of the whole proceeding. It is far better to inject too little than too much, because in the former case the injection can easily be repeated if necessary. My practice is to inject all the piles at one sitting whenever it is possible to do so. Sometimes this is not practicable, because after injection a large pile sometimes swells so rapidly that the smaller piles are completely hidden for the time. I find it easiest and best in every way to perform the injection through a large speculum. The one that is most suitable is Kelly's sphincteroscope, as illustrated in Fig. 1. Through this instrument the piles may be brought well into view, and even quite small ones may be seen—piles which could never be extruded and injected outside the anus.

FIG. 1.



Kelly's sphincteroscope.

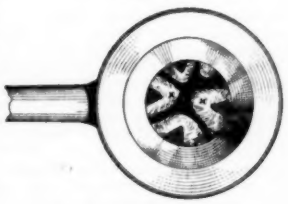
The other needful appliance is a suitable syringe. This should be one of such length and diameter that it can easily be used through the speculum. It should have a fairly wide-bore needle, about 3/8 inch long, fitted into an elbow-shaped socket. The shape of the socket is important, because if a straight one were used it would be difficult or impossible to see where the point of the needle was being inserted. The syringe should be provided with the usual milled screw on the piston-rod, so that the correct quantity of the fluid may be

FIG. 2.

Modified Dawson's dental syringe.

measured off and injected. The syringe shown in Fig. 2 is the one which I find most useful. It is known as Dawson's dental syringe, but the needles have to be specially made. It is provided with two rings at its base to act as finger grips. The syringe is made entirely of metal, and is therefore readily sterilised. The only other essential is a really good light. I find either the ordinary forehead-lamp or a good standard laryngoscope lamp equally suitable. The patient's bowel should have been cleared out previously by an enema if necessary. The patient may be placed either in the "knee-elbow" position or on the left side with a firm sandbag or cushion under the hip. I usually employ the former posture for men and the latter for women, but on the whole the "knee-elbow" position is preferable, because the lateral position necessitates an assistant to hold the right buttock out of the way in stout females. The speculum is then passed. It should be very liberally greased with vaseline, and passed with all gentleness; if this is done it should cause no pain; but if it is not properly lubricated or is passed roughly, pain will be caused, and a nervous patient may afterwards describe the operation as anything but as painless as had been promised. The speculum should be passed at once to its full length, and the obturator withdrawn. The interior of the rectum being then visible, the speculum is slowly withdrawn for about an inch at a time, and then gently pressed in again for half an inch. In this way, when it has been withdrawn gradually down to the level of the hæmorrhoids, they will prolapse into the lumen of the speculum. The appearance presented will then be much as is shown in Fig. 3, the lightly shaded areas being diagrammatical representations of the piles in the positions in which they are usually found. The dark pyramidal areas in front of each are the little anal valves, immediately *above* which the hæmorrhoids lie. These valves are important landmarks, and the needle should never be entered below them, or it will be encroaching dangerously on the mucocutaneous junction. The greatest care must be taken to avoid this error, because if the injection is made too close to the skin it will produce a very decided amount of swelling and inflammation and consequently of pain.

FIG. 3.



The speculum in position.

Before making the injection the piles may be sponged over with a little weak biniodide of mercury or 1–50 lysol solution, which should be at once mopped up with a dry swab to prevent risk of absorption. It is a good plan also to touch each pile at the spot where it is proposed to inject it with a drop of pure carbolic. This renders any chance of introducing infection from the mucous membrane negligible, (I have never heard of infection occurring even where this precaution is not adopted), and also renders the point anæsthetic, so that even the needle prick is not perceived. The needle may then be inserted through the carbolised spot. The surgeon should endeavour to enter the needle in the spot indicated on the two lateral piles by a cross in the diagram. It should be pushed up along the long axis of the pile to near its base; usually this means entering the needle to the shoulder of the shaft—i.e., to its full length. The lowest pile should always be injected first, so that any bleeding which may occur shall not obscure the other piles. The solution is then slowly injected in the quantity deemed advisable. The needle is not withdrawn at once, but should be allowed to remain in position for some 30 seconds, until the pile has commenced to swell and has become blanched. If this precaution is omitted there will be a good deal of bleeding as it is withdrawn, and the bulk of the carbolic solution will be washed away by the blood. If any of the piles are of large size, it is well to make a second injection into the base of the pile by entering the needle in the transverse axis of the pile and injecting two or three drops of the carbolic solution as nearly as possible into the centre of the base of the pile. Each pile is treated in turn in the same way. The blood is mopped away with a sterile swab, and the "operation" is complete. The whole proceeding does not take more than two or three minutes to carry out.

The patient should be warned that the piles will swell up, and are likely to prolapse at first more than before. It is of the greatest importance that they should not be allowed to remain down, but that they should be at once gently reduced, otherwise there is a risk of their becoming strangulated and sloughing. The patient should be instructed therefore to keep quiet, if possible in bed, for the first 12 to 24 hours, and to wash the piles at once with cold water, should they prolapse, and then to grease them well with vaseline or some simple ointment and gently press them back. This is the only after-treatment required, excepting that some simple laxative, such as confection of senna and sulphur is advisable. In working-men, or in those with important business to attend to, it is not absolutely necessary to lie up at all, and if the injection is made in the evening, the patient may quite safely go to work or business on the following day—but he should then be told not to take unnecessarily strenuous exercise. After five to seven days, the piles which have been injected will have shrunk markedly and eventually will be converted into mere fibrous ridges, which may be felt on digital examination. If sufficient carbolic has not been used this process will not be complete, and a second injection may be made after the expiration of from four to seven days. Where the piles are large I have found that as many as four or five injections at weekly intervals may be required, but as a rule two or three are sufficient. Frequently, after the piles which have been injected first have shrunk, other smaller piles, which were concealed before, come into view, and these should be injected also, before the patient is dismissed. In practically every case the bleeding, of which the patient had been previously complaining, is stopped from the very first, and in most cases the prolapse also disappears within two days of the first injection. As one patient put it to me recently, "I feel a hundred per cent. better."

In quite numerous cases of inveterate pruritus I have found a few small hæmorrhoids on careful examination with the speculum, and after these have been injected, the pruritus has disappeared—apparently for good. I believe, therefore, that this little point might be borne in mind, and the injection of any piles that are present be tried before even contemplating the recommendation of any of the more severe operations for pruritus (such as Ball's operation) which, I believe, are often resorted

to before a real attempt has been made to ascertain and remove the cause of the pruritus.

Lockhart Mummery has recorded a case in which he unwittingly injected some hæmorrhoids in a hæmophiliac, with the result that rather dangerous hæmorrhage occurred. This experience must be almost unique, but the possibility of such a misfortune should be remembered. With this sole exception I know of no case in which the injection of piles has given rise to any dangerous complication; and, while I do not by any means go as far as Sir James Goodhart, I certainly do think that injection might be employed far more frequently, and operation less frequently, than is at present customary.

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THE PROGNOSIS IN SYMPATHETIC OPHTHALMIA.

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CUSTOM cannot justify the retention, upon logical grounds, of an effete terminology, a remark applying here to certain "terminological inexactitudes" prevalent in the science of ophthalmology, with special reference to the term sympathetic ophthalmia. Every ophthalmologist is agreed that the disease is not due to sympathy, but to a process of infective origin. Still, while this fact is generally conceded, the old misleading term is retained and used merely as a votive offering upon the altar of custom. Although, as an infective disease, the evidence is lacking in respect to the special micro-organism upon which the disease depends, at the same time no reasonable doubt exists that such a micro-organism is present. Meanwhile, bacteriology has failed to isolate it—it may be from failure of bacteriological technique. This negative result, however, does not disprove the infective origin of the disease; if anything, it only relegates it to the same category as that of other diseases whose bacterial origin is admitted, but has, so far, failed to be actually revealed. Based, therefore, upon these premisses, I have for some years employed the term infective cyclitis in reference to sympathetic ophthalmia. This term may not precisely fulfil its mission; at the same time, it approaches nearer the reality, and is nowadays more strictly accurate than one in which a sympathetic origin is implied. If, however, this term be objected to, as conveying too localising an impression, the variant, infective ophthalmitis, might be substituted to meet the susceptibilities of discordant opinion. As I shall endeavour to show, in reality, a good deal—more than is generally supposed—turns upon this suggested change of nomenclature. We can but admit that much legendary lore is associated with the old term sympathetic ophthalmia—lore tragical in its association, though founded on fact in the olden days, but, nevertheless, lore which is not supported by modern experience. It cannot be disputed that the disease is now a different disease, at least in degree, from that upon which its literature has been mostly based. The following reasons may be advanced in proof of this contention. In the first place, sympathetic ophthalmia, so-called, is becoming very rare with time; its increasing rarity has corresponded with the practice of aseptic and antiseptic principles in wound treatment. For the same reason its virulence is greatly modified, and owing to this decline in virulence the disease has become curable. In mild cases in which the infective process has developed, recovery is possible even to the extent of leaving no trace of the effects of the attack and the retention of normal vision in each eye. Despite, however, the nature of the attack, and the favourable result, the legendary lore of the disease called sympathetic ophthalmia is made to apply to these cases. In short, the teaching became an axiom—namely, "sympathetic ophthalmia once, sympathetic ophthalmia ever, all the time that a patient lives," to paraphrase a statement in regard to syphilis by the late Sir William Gull. On the other hand, were the disease to be endowed terminologically, in a manner more accurately expressive of its modern conception, the tragical axiomatic conclusion of former days would cease to become a stumbling-block in respect to its prognostic significance, while the present-day more enlightened experience would take the place of a discredited claim, and become generally operative as a modern belief.

The following case illustrates the point in question:—

A young girl received a penetrating wound of the left cornea, slightly involving the limbus. The injury was caused by the point of the blade of a pocket-knife, and was accompanied by a large prolapse of the iris. She attended at a hospital and was treated as an out-patient. Subsequently, she was admitted with signs of infective cyclitis. About three months later, having made a good recovery under treatment, she was referred to me by an insurance company for report. The right eye was natural in appearance externally: the pupil was regular, acted freely to light, the media were clear, and the vision was 6/9, with −0·50 cyl. W. 6/6 nearly. In the left, or injured eye, the signs, except for the history, were negative of an infective attack. There was a large coloboma of the iris on the inner side, and some scarring of the cornea, corresponding to the wound: the pupil acted freely, so much as was left of it, the media were clear, the tension normal, and no pain on palpation was complained of. The vision was 6/60 and was improved to 6/18 nearly, with + 2·50 cyl. N.[1] After reporting favourably upon the case I desired that the girl should be sent to see me again in six months' time. This was done, with the same result, in respect to her examination. Accompanying her, however, upon this occasion was a tragic report obtained from the hospital to the effect that she had suffered from sympathetic ophthalmia, that the eyes were consequently in a dangerous condition, that at any time the disease might relapse, and that possibly the girl in the future would become totally blind. And yet here was a case of mild infective cyclitis in which the treatment had effected a cure, leaving no trace of the infective attack. The loss of vision in the injured eye was due partly to the opacity of the cornea, involving the pupillary area, and partly to the acquired astigmatism resulting from the corneal wound. Thus had legendary lore condemned this girl to a life of invalidism, so far as her eyes were concerned. How could she continue to earn her livelihood with such a menace of blindness hanging over her? The evidence did not support so tragical a conclusion, and so I reported to the company that she was now fit to resume her occupation.

It is plain that in this case no allowance was made for the mildness of the infection. The terrible prognosis was obviously based upon the past traditions of an acute virulent attack of sympathetic ophthalmia, manifestly portraying its presence, after partial recovery, by the gross sequelæ of a plastic irido-cyclitis in the sound eye (enucleation having been performed upon the injured one), by the retention only of a remnant of vision and by some loss of tension. Had any of these signs been present the prognosis might have been justified according to the old traditions. But such was not the case, and yet, despite this fact, the danger of relapses and the horror of ultimate blindness were included in the pronouncement of this girl's presumed fate.

[1] The cylindrical notation recorded corresponds with the mariner's compass (vide THE LANCET, Feb. 19th, 1910, p. 509).

Some views may now be advanced in respect to the question of relapses, to which the disease, in earlier days, was especially prone. In considering the matter first from the infective standpoint, the fact is clear that enucleation of the injured and infective eye acts prophylactically by removing the source of the infection. Generations before the bacterial origin of the disease was ever thought of, this procedure was practised as the only method of treatment holding out any prospect of arresting the progress of the disease. However, in the literature of the subject, cases have been recorded in which this result was not entirely attained. Sometimes the infective signs have appeared in the sound eye some days after the enucleation; sometimes the influence of enucleation in arresting the disease has failed to become manifest, especially in severe cases. These varying results have tended always to arouse speculation, casting some measure of doubt upon the real etiology of sympathetic ophthalmia. But in the light of its infective origin the explanation of these apparent divergences presents itself as easy, if we accept the premiss that the disease and its effects are controlled by the virulence of the infecting organism and the toxin it creates. When the disease develops, some days after enucleation, in the sound eye, we may logically assume that the blood has already been charged with the toxin from the infecting eye, and any symptoms of the disease arising after the enucleation of the latter may be attributed to this cause. Again, in the case of enucleation failing to arrest the disease, it may be assumed that the virulence of the infection and of the toxin has caused a high degree of toxæmia which remains after the source has been removed. In these cases there does not seem to be anything remarkable, when they are compared with cases of acute traumatic tetanus, in which a fatal course is unarrested by excision of the wound.

But a further factor may be concerned in association with the relapses to which eyes in which infective cyclitis has occurred are generally regarded as subject. It is scarcely necessary to recall that a plastic irido-cyclitis, of infective origin, is especially liable to cause destructive changes in the uveal tissues, and especially in the ciliary body—the blood organ of the eye. The effect of these changes can only be to induce a condition of diminished resistance in these delicate tissues, rendering them liable to exhibit reaction when exposed to any source of metabolic toxæmia. The recurrent attacks, therefore, of so-called sympathetic inflammation, of which the text-books speak, may be attributable to this cause, the relapses occurring independently of, and secondarily to, the primary infection. The question of metabolic toxæmia as a causative factor in relapses of sympathetic inflammation, so-called, does not seem to have been considered. And yet, as I have endeavoured to show in a paper in THE LANCET,[2] the influence of such a factor, in respect to all inflammations of the uveal region, presented notable points, bearing closely upon their origin and treatment. For example, relapses could scarcely fail to occur in eyes damaged by sympathetic ophthalmitis when the patient was suffering from the effects of alveolar pyorrhœa.

However, this paper may appear to be too speculative, and in the conclusions expressed, somewhat transcending the accepted belief that the disease in question is of infective origin. But while this may or may not be admitted, the fact nevertheless remains that every feature of the disease is capable of explanation upon this hypothesis. There is nothing which even remotely suggests any sympathetic influence in its incidence. On the other hand, to maintain the contrary impression obviously tends to hinder advancement of our knowledge rather than to promote it. So long as "sympathy" is still regarded as a factor in the etiology, so long will the tendency prevail to divert attention from the real line of progress. At the same time the truth must be admitted that the many blanks which have been drawn by original investigators in the attempt to demonstrate the infective origin of the disease, have materially discounted further efforts to prove its real pathology. In this respect, therefore, interest in the disease has suffered some diminution, and probably the days will be long before the veil is raised revealing the true origin of the infective process. Meanwhile some responsibility rests upon teachers in their use of the term "sympathetic ophthalmia." This term can only prove misleading to students—misleading in the sense of conveying the impression that sympathy is a factor in the causation of the disease. Inasmuch as this premiss cannot now be maintained, it may reasonably be submitted that in all future text-books upon ophthalmology the subject should be discussed solely from the infective point of view, and a term corresponding with the modern view of the disease employed, in the place of one which is now generally regarded as inaccurate.

The next and final point to which attention may be drawn is the question of sympathetic irritation. When Donders enunciated his belief that sympathetic irritation and sympathetic ophthalmia of his day were different morbid entities, this teaching was accepted and has since prevailed. But reflection must show that this teaching was founded, not upon a basis suggestive of the pathology of the irritation signs, but solely upon the features represented by their incidence, and because these signs differed in degree from those of sympathetic inflammation the assumption was arrived at by which the two "sympathetic" manifestations were held to have a different origin. From a pathological standpoint this reasoning was obviously unsound, and bearing upon this fact two or three points may be mentioned. The close relationship existing between sympathetic irritation and sympathetic ophthalmia is demonstrated by the immediate arrest of the signs of the former by the enucleation of the eye to which their onset is attributed. The same is true in cases in which sympathetic ophthalmia is present in the infecting eye, whose removal has become imperative in order to lessen the peril to the infected or sound eye, in which the symptoms are also present. But the apparent difference in the manifestations of the signs in each case must be only a difference of degree, not of kind, a difference readily explainable upon the hypothesis of the varying virulence of the toxin to which the morbid effects are due. In the first case the toxin resulting from the infection is only sufficient to give rise to modified symptoms; in the second it is active enough to produce its destructive effects. We may, therefore, reasonably assume that the toxin conveyed through the medium of the blood from one eye to the other causes symptoms in accord with its virulence, and this hypothesis merely coincides with what we should expect of an infective disease.

[2] THE LANCET, May 29th, 1915, p. 1129.

The probability is that the real line of successful treatment in these cases lies in the discovery of a vaccine. For this discovery, however, we shall have to wait until we know more of the true source of the infection. Meanwhile, as is well known, pus infections of an eyeball do not cause "sympathetic" inflammation, the reason being that perhaps with one exception they do not create a toxin. Again, infective cyclitis may be due to a mixed infection, and this possible fact may account for the difficulty which has so far been encountered in determining its nature.

Wimpole-street, W.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

Gas Gangrene.

A SPECIAL meeting of this society was held on March 10th, Dr. FREDERICK TAYLOR, the President, being in the chair.

Dr. M. WEINBERG, of the Pasteur Institute, Paris, delivered a lecture entitled "Bacteriological and Experimental Researches on Gas Gangrene." He said that he commenced his researches on the subject at the British Military Hospital at Versailles in September, 1914, owing to the number of cases of gas gangrene among the British wounded from the battle of the Marne. He was sent from the Pasteur Institute to the British front to investigate, and had since continued his research at a number of hospitals, both French and British. The majority of surgeons had a rather confused notion of the disease at the beginning of the war, as evidenced by the various discussions at surgical societies. The war surgeon showed a tendency to diagnose the condition every time he observed a very bad wound with gas infiltration if it extended rapidly. The speaker referred to two separate forms of gas gangrene. The first was the classic form, for it was described in all surgical treatises. The second he designated the toxic form. A typical instance of the first variety was that of a soldier who was received into hospital 24 hours after being wounded. The foot and lower two-thirds of the leg was dark coloured; the wound was partly in the gangrenous, partly in the healthy tissue. The discharge had a putrefactive odour. The leg and thigh were swollen as far as the junction of the middle and upper portions, the veins much distended, and the skin bronzed. Palpation revealed crepitation around the wound. The temperature was 102·5° F., the patient being fully conscious. In a few hours crepitation had extended all over the leg and thigh, and four or five large blebs containing dark liquid appeared on the thigh. The temperature rose to 104°. Though amputation at the middle of the thigh was carried out, the gangrene extended over the trunk up to the neck, and death occurred the same night, the patient having suffered from dyspnœa two hours before the end. The development was not always so rapid, because the microbe chiefly answerable was often of a low degree of pathogenicity, and in such mild cases radical surgery usually saved the patient's life. In another form of gas gangrene the predominant symptom was œdema, which might be so considerable as to mask the gas infiltration. An instructive case was that of a sergeant who was admitted into a French hospital 40 hours after he was wounded, having been exposed 24 hours after being hit between the French and German lines. He had a wound on the middle third of the forearm. Gas crepitation round the wound was slight, but marked œdema extended to the middle of the arm and the veins were prominent. In spite of incisions on both sides of the arm and the washing of the wound with peroxide, the œdema extended to the shoulder and chest, and the patient died 24 hours later, without showing any extensive crepitation. The putrid odour was not necessarily a symptom of the case, and it bore no relation to its gravity; indeed, this odour was often due to organisms of quite low pathogenesis. Dr. Weinberg exhibited some micro-photographs of culture fields from cases revealing a variety of organisms, including B. perfringens, staphylococci, streptococci, and diplococci; also B. sporogenes. Gas gangrene did not seem to be due to any one specific micro-organism. Owing to the difficulty of distinguishing B. perfringens from the *vibrion septique* the toxins must be tested with antitoxic serum. B. perfringens produced large quantities of gas; the *vibrion septique* not so much. There had also been found in these cases a B. œdematis, the toxin of which, when injected subcutaneously into a guinea-pig, produced a rapidly extending œdema. This microbe was often found associated with the B. sporogenes. He wished to repeat that there was no special flora peculiar to gas gangrene. A French doctor had discovered a new microbe, causing the same form of gas gangrene—namely, B. fallax. Some of the flora found in the condition came from the air, many were of intestinal origin. In all his cases he had tried to make a hæmoculture, but it was not always positive; indeed, it was quite rarely so in the toxic form of the disease. Metchnikoff had shown that when a toxin was injected subcutaneously into guinea-pigs it prevented the microbe, by chemiotaxis, from arriving at the site of injection. In one case hæmoculture was done under the best conditions half an hour after death, and yet it proved negative. The end came quite quickly, and the case was found to be due to three kinds of pathogenic organisms. It was important to remember that every microbe was capable of producing colonies of various shapes, so that shape of colony could not be relied on as a criterion. The very rapid course of the gangrene in some men and animals was explicable on the ground of personal susceptibility. If a wound were examined only a short time after its infliction few pathogenic microbes might be discovered, and yet in spite of prompt surgery gas developed. Therefore favouring conditions must exist. Careful observations and experiments showed that the gangrene of the limb was not caused by the microbes of gas gangrene, but by the complete obliteration of an important artery, such as the popliteal. In one case the anterior and posterior tibials were obliterated by an inflammatory clot caused by non-gas-producing organisms. The alteration in the tissues following vascular obliteration formed a favouring condition for the multiplication of gas-producing organisms, and for this it was not necessary for the injury to be extensive. To prevent gas gangrene wounds should be treated with the least possible delay; hence the most hopeful were those which could be quickly removed from the firing line. As great improvement in this regard had now been brought about, the number of the cases now seen had diminished, even in view of the present number of wounded. All surgeons were now agreed as to the great importance of immediately opening the wound as widely as possible and extracting projectiles and particles of clothing, combined with frequent irrigation with chemical solutions. Good results had also followed the use of superheated air and the intravenous injection of salvarsan. Polyvalent serum was also helpful—one prepared from all the organisms found in the wound. Dr. Weinberg concluded by expressing a hopeful view as to the outcome of these researches, given a continuance of patient striving towards the goal.

For the convenience of our readers who may wish to follow up further the researches of Dr. Weinberg on gas gangrene we append a short bibliography taken from the first instalment of an index[1] of war surgery published by the *Review of Comparative Pathology*:—(With P. Séguin): Notes bactériologiques sur les infections gazeuses, C.R.H. Soc. de Biol. June 11th, 1915, p. 274. Un cas de gangrène gazeuse à vibrion septique, ibid., April 2nd, 1915, p. 141. Recherches sur la gangrène gazeuse, C.R. de l'Acad. des Sciences, 1915, p. 325. (With P. Séguin): Sérum anti-œdematiens, C.R.H. Soc. de Biol., Nov. 6th, 1915.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF OBSTETRICS.

Exhibition of Specimens.—Abdominal Pregnancy.—Intestinal Hæmorrhage in the New-born.

A MEETING of this section was held on Feb. 11th, Dr. GIBBON FITZGIBBON, the President, being in the chair.

[1] Index de Chirurgie de Guerre, publié par la Revue de Pathologie Comparée. Premier fascicule. La gangrène gazeuse et les plaies gangrèneuses. Par les Drs. P. Moiroud et H. Vignes (de l'ambulance, 1/85). Paris: Librairie A. Maloine et Fils. 1916. Pp. 36. Price 1.50 fr.

The PRESIDENT showed a Uterine Sarcoma removed from a patient aged 51 years. There had never been any menstrual abnormality, and the menopause occurred between 45 and 46 years of age without incident. Five months before operation the patient developed uterine hæmorrhage, which came on irregularly and frequently, and for five weeks had been continuous; the only other symptoms were due to pressure of the tumour in the pelvis. On examination a symmetrical tumour was found reaching nearly to the umbilicus, and suggesting fibroid of the uterus. Total hysterectomy was done. On opening the uterus the cavity contained a pure-white lobulated mass, brain-like in consistence, the centre of which contained blood-clot. Microscopically the tumour was a round-celled sarcoma. He referred to another case of Fibro-sarcoma removed from a woman aged 27 years. Both tumours were cystic. It was not possible in either case to diagnose sarcoma as distinct from fibroid before removal, though at operation the probability was suggested by the softness of the tumour in the case shown and by the impossibility of enucleation in the other case.—Professor A. J. SMITH stated that his experience was that pain seldom occurred in the early stages of diffuse sarcoma, but it was an early manifestation in fibro-sarcomas. He recalled cases of polypi projecting through the os in which pressure of the examining finger burst a thin limiting membrane which formed the capsule of the polypus. The presence of this membrane he considered characteristic of sarcoma.—Dr. R J. ROWLETTE considered that the tumour originated in the endometrium; this form was most frequent in his experience.—Dr. BETHEL SOLOMONS said that although text-books referred to sarcoma as a disease of early life, the experience in this country was that it occurred most commonly about or after the menopause.

Dr. SOLOMONS read a paper on Abdominal Pregnancy, in which he concluded that the cause of the condition had not been established, that diagnosis was extremely difficult, and that the best treatment was to operate immediately the case was diagnosed. He described a successful case which had occurred in his practice, and exhibited the specimen.—Professor SMITH recalled a case of a patient ten months pregnant in which there was no difficulty in diagnosing abdominal pregnancy. The child could be palpated distinctly. No fœtal heart was audible, and the uterus could be isolated bimanually. The child weighed 12 lb.; it was free from any malformation. The liquor amnii was scanty; the placenta, which was attached to the broad ligament, was easily separated. There was no difficulty in controlling the hæmorrhage, as the vessels were thrombosed. In Dr. Solomons's case the condition was different, for there was an actively growing fœtus with its placenta broadly attached. The danger from hæmorrhage in separating the placenta was very great. He suggested the advisability of primary ligation of the corresponding internal iliac artery before proceeding with the separation of the placenta.—Dr. E. HASTINGS TWEEDY said that he thought the time had arrived to review our preconceived impressions respecting the fear of operative procedure in abdominal pregnancy. We had been too much under the influence of the teaching of the older school, and all the horrors of uncontrollable hæmorrhage had been derived from their writings. He thought that the proper way was to tie off all vessels which fed the placenta, dealing with them one by one as they came into view, rather than endeavouring to ligate some large artery which might theoretically be supposed to feed all the placental branch vessels.—The PRESIDENT agreed with the manner in which the case had been dealt with, and considered the only proper surgical treatment was to remove the entire mass. Any oozing from raw surfaces should be controlled by gauze packing.

Dr. MABEL CRAWFORD described two cases of Intestinal Hæmorrhage in the New-born, both occurring in female infants, the hæmorrhage appearing 36 and 52 hours after birth respectively. In each case the labours were normal. The first was treated with horse serum administered subcutaneously in three doses of 2 c.c. each and with small doses of adrenalin. The infant died on the fifth day. Post mortem there was found a duodenal ulcer very near the pylorus. The second case was treated with antidiphtheritic serum—two doses of 5 c.c. each—and recovery was complete. Breast-feeding was resumed on the fifth day without any further trouble. In both cases the only symptom was the passing of massive hæmorrhages per rectum; there was no vomiting.—An interesting discussion followed.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on March 3rd, Dr. Leonard Dobson, the President, being in the chair.—Mr. J. G. Pardoe read a paper on Prostatitis, Acute and Chronic, in which he first described the anatomy of the parts concerned, afterwards discussing the causes, symptoms, and treatment of acute prostatitis. Heroic treatment, unless an abscess formed, was deprecated, the treatment recommended being hot irrigation of the rectum through two tubes. If abscess formed and required opening, it should be opened through the perineum and never through the rectum, otherwise a troublesome fistula would probably result. Mr. Pardoe said that the key to successful treatment of chronic prostatitis was prostatic massage and posterior irrigation systematically employed. The treatment was described as well as the investigations to be undertaken before a patient suffering from gonococcal infection of the prostate could be pronounced free from disease and allowed to marry. Tubercle and syphilis of the prostate were discussed. The differential diagnosis between adenoma, carcinoma, and fibrous prostate brought the paper to a close.—It was discussed by the President and Mr. Aslett Baldwin.—Dr. S. D. Clippingdale showed a Spleen weighing less than 2 ounces from a man aged 73, who died from heart disease and bronchitis. The specimen was sent to the pathological laboratory for examination.

BRADFORD MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Feb. 22nd, Dr. J. T. Kitchin being in the chair.—Mr. J. J. Bell read notes on a case of Cancer of the Uterus treated by radium. The patient, aged 52, had total hysterectomy performed in June, 1912. Three months later a small spot in the left corner of the vagina had not healed. This piece of tissue was removed and cauterised. It still refused to heal, and the spot slowly increased in size. In June, 1914, radium was applied to the ulcer in the vagina. In six weeks the ulcer had healed, and the scar was still sound in January last.—Dr. A. F. Martin reported on his experience of Scopolamine-morphia Narcosis in Labour. He had employed it ten times, all the cases being primiparæ. The method he used was to give 1/4 and 1/100 gr. doses respectively and to reinforce every two or three hours with 1/250 or 1/300 gr. of scopolamine and every eight hours with ¼ gr. morphia. His conclusions were: 1. If given too early it only allays tedious and painful spasm of the os and abolishes the pains. Pituitrin in 1 c.c. doses does not re-establish the pains. 2. It is a great boon when dilatation is almost full, and from then onwards to delivery, even though it may entail a narcosis of 8 to 10 hours. The patient invariably has no recollection of any pain within a few minutes of the first dose. 3. The narcosis makes no difference in the amount of chloroform required in case of forceps delivery, nor in the amount of hæmorrhage. 4. The condition of the child only gave rise to anxiety in one instance, and that was thought to be due to the giving of a fractional dose too near delivery. No dose should be given less than two hours before delivery. 5. The regulation of dosage is the crux of the whole matter. The objections to the method are (1) its tendency to make labour slower and (2) the resort to forceps more frequent.

LITERARY INTELLIGENCE.—A life of the late W. B. Tegetmeier is about to be published by Messrs. Witherby and Co., written by his son-in-law, Mr. E. W. Richardson, who was long associated with him in his literary and social life.

NEGLECT OF VACCINATION IN IRELAND.—Sir Charles Cameron, medical officer of health for Dublin, has issued a warning in the daily papers advising parents who have unvaccinated children to submit them to vaccination without delay. Small-pox has been notified in several English towns which are in intimate intercourse with Dublin, and there are a great many unvaccinated children and young people in Dublin. Some of the boards of guardians throughout Ireland are now bestirring themselves to enforce the vaccination laws. At Mountrath petty sessions recently 38 persons were prosecuted for failure to have their children vaccinated, and fines were imposed in several cases. Other summonses were withdrawn on an undertaking being given to comply with the law.

Reviews and Notices of Books.

The Endocrine Organs: An Introduction to the Study of Internal Secretion.

By Sir EDWARD A. SCHÄFER, LL.D., D.Sc., M.D., F.R.S., Professor of Physiology in Edinburgh University. With numerous illustrations. London: Longmans, Green, and Co. 1916. Pp. 156. Price 10*s.* 6*d.* net.

THIS book is founded upon a course of lectures (Lane Medical Lectures) delivered at Stanford University, California, in the summer of 1913. The abbreviated form, without illustrations, has already been reviewed in THE LANCET of May 8th, 1915 (p. 970).

The revised form is greatly enhanced in value by the addition of the tracings and photographs —104 in all—which were used to illustrate the lectures. The references to literature are purposely not unduly extended. The author's aim is to supply a concise account of our present knowledge for the benefit of students and practitioners who may be desirous of obtaining more information regarding the internal secretions than is afforded by the ordinary text-books of physiology. How admirably the author has succeeded in his aim is strikingly exemplified by a careful perusal of the text, which is given in separate chapters and not in lecture form. Professor Schäfer himself and some of his pupils have for many years been constantly adding to our knowledge of these ductless glands, so that he expounds his theme with first-hand knowledge. An endocrine organ is one which is known to form some specific chemical substance within its cells, and to pass this directly or indirectly into the blood stream. The substance thus formed is the active material of the secretion. These substances are quite different from enzymes. New terms are introduced—e.g., chalone, which means an endocrine product which inhibits or diminishes activity, as distinguished from a hormone, which excites to increased activity. The term autacoid is given to a specific substance formed by the cells of one organ and passed by them into the circulatory fluid to produce effects upon other organs similar to those produced by drugs. They may act either in the direction of excitation, and are then excitatory autacoids, or in that of restraining activity, inhibiting autacoids or chalones.

After describing the groupings of the glands into three main heads—thyro-parathyroid apparatus, suprarenals, and pituitary—each of these being compounded of two distinct but usually closely intergrown parts—the author proceeds to describe the methods used for the study of these glands. The individual glands are then considered in detail, beginning with the thyroid and parathyroids. In each case the structure, development, and physiology are succinctly set forth. The four parathyroids —each one weighing only about half a grain—are amongst the most vascular organs in the body. Tetany is without doubt a result of their removal. Medical practitioners will be specially interested in the physiological and therapeutical effects produced by administration of the glands themselves or their specific products, and also by the author's remarks on the complex relation between the several endocrine glands towards themselves, as well as towards the other organs of the body which are affected by their removal. The autacoid of the parathyroid (parathyrine) seems to be inhibitory in function, serving to keep in check the activity of certain tissues, especially of nerve cells, while thyrine from the thyroid acts like a hormone in increasing their excitability. The interaction of the thyroid with other organs—e.g., generative organs, liver, pancreas, adrenals, pituitary, and thymus, is carefully considered. As to the thymus, its functions "are more obscure than those of most of the endocrine glands: indeed, there is room for question whether it should be included amongst these bodies." Naturally much attention is given to the suprarenal capsules. Little is known regarding the functions of the cortex, though there is some reason to believe that there is a connexion between the development of the sexual organs and that of the adrenal cortex. The richness in lipoids and fats is a very striking feature. The question is raised as to a connexion between the development of the substances formed in the cortex and those constituting the cerebral hemispheres. The marvellous activity of adrenalin is shown by the fact that a strip of intestinal muscle is affected with a solution containing 1 in 20 millions and a strip of a coronary artery with a solution of 1 in 50 millions.

To the pituitary body, though only about the size of a hazel nut without its shell, about 50 pages are given. All the recent work is passed in review, including the epoch-marking research of Harvey Cushing on the effects of removal of this gland. What little is definitely known about the pineal gland is set forth. The secretions of the alimentary canal and the pancreas are next discussed. About 18 pages are given to the internal secretions of the generative glands in the male and female, including the effects of castration, and the functions of the interstitial cells of the testis and the ovary, the corpora lutea, effects of removing and reimplanting ovaries, effects of ovarian extracts, the internal secretions of the uterus, mammary gland, and placenta.

Altogether this is an admirably luminous and concise account of the present state of our knowledge concerning the highly important glands grouped as "Endocrine Organs."

JOURNALS AND MAGAZINES.

Biometrika. (December, 1915.) Edited by KARL PEARSON. Cambridge University Press. Price 20*s.* net.—We cannot be too grateful to Professor Karl Pearson for issuing *Biometrika* as usual during the war—a very remarkable achievement when we take into account the depletion of workers, the converting of laboratories into hospitals, and the financial strain during the primitive struggle for existence to which the world has been reduced. The current volume of this review contains, as usual, articles of special interest to medical science, notably a memoir by Madeline H. Whiting, dealing with the relation of temperature, pulse, and respiration to physique and intelligence. Miss Whiting, with customary biometric exactitude—which in this case we think may be a little misleading—describes her work as a study in *criminal* anthropometry, presuming, apparently, that because her data were obtained from criminals, therefore results derived from analysis of these data would apply only to criminals. But most of these results open up wider anthropometric issues. To quote an instance: Miss Whiting divides the data into several broad categories, distinguished by the bodily condition of the subjects. Within these categories she finds significant differences of mean temperature. Precisely stated, the means range from 98·2°, which is the value for subjects with quiescent tuberculous disease, to 98·6° for a group distinguished by functional disorder of the heart. Now these differences, where significant, are, of course, *general*, and not *criminal*, anthropometric facts; they are valueless for predicting criminality, but they contribute to the diagnosis of disease; and, incidentally, they are confounding to the old notion of a fixed "normal

temperature": that the temperature of every non-febrile individual registers 98·4° exactly. Here is another example: Miss Whiting investigates changes of body temperature coincident with age; and she is enabled to summarise her conclusion with an equation which can be expanded to mean that the temperature falls 1/200 of a degree per year. We think this decline of temperature with age can be regarded with safety as a physiological fact common to humanity, and not as a condition peculiar to criminals only. But a chief object of this inquiry was to investigate the relation between temperature and intelligence; several writers having maintained that low grades of intelligence are associated with low degrees of temperature, notably Norsworthy, whose statement is to the effect that as we pass down the scale from brightest girls to defectives and idiots there is a progressive decline in body temperature. Miss Whiting's work does not confirm this statement; on the contrary, her conclusion, from evidence of criminal data, is that "the weak-minded have a significantly *higher* average temperature than normally healthy criminals." Yet this does not show that the higher temperature is a characteristic of weak-mindedness. For perhaps defectives suffer to a greater extent than others from chronic disorders associated with higher temperature? Miss Whiting proceeds to examine this question; and her conclusion is that none of the observed pathological states is the source of the higher temperature of defectives. Can the difference of temperature we are referring to be explained as an age difference? Again the conclusion is negative. The figures do show that temperature falls with age, but they also show that the decline is independent of mental grade: that at *every* age defectives have a higher temperature than normal minded. However, in regard to this departure from Norsworthy's result, two points must be remembered. The first is that not only are weak-minded criminals unrepresented by idiots and imbeciles, but all of them do not suffer from intellectual defect; some criminals becoming weak-minded through drink; others from vice, insanity, and instability of character; and a few indeed being classed as weak-minded from unmitigated depravity of conduct only. The second point is this. We know that there is a social class differentiation in some physical characters; we know that criminal defectives are drawn very disproportionately from the very lowest social classes; accordingly, there is still a possibility that the higher temperature of defectives, revealed by criminal data, may be a reflection of class differentiation in temperature, and is not an associated attribute of mental deficiency. Dealing with problems of pulse, respiration, and other characters in similar differential fashion, Miss Whiting adds considerably to knowledge of anatomical and physiological relationships. Particularly interesting are the discovered regression of temperature on pulse, and the demonstration provided of the marked individuality that exists in the functioning of bodily organs, which in the case of heart and lungs Miss Whiting shows to be as great as the physical differences in these organs themselves—pulse frequency and quality of respiration being as constant in the same individual at different times as they are variable in different individuals.

We have noticed this most interesting memoir with some detail, because it has the merit of illustrating the peculiar genius of biometric methods for disentangling the complicated conjunctions, affinities, and associations which impede solution of medical problems: the ideal of biometry being to achieve a just perspective by trying every issue on the evidence of all the facts, rather than by an evasive arrangement or selection of facts to enforce a particular view. Other contributions to this number do not deal directly with medical problems, but most of them will be found to bear more or less indirectly on some one of the varied aspects of medical science. For instance, inspired by special botanical knowledge, and with conspicuous impartiality, C. Cool and A. N. Hoopmans are content to record the facts only (data, constants, correlations, &c.) of a statistical investigation into the variation of the number of umbel rays of Umbelliferæ, and, while stating a conclusion, leave it to others to base intelligent opinion on the facts. And Myer M. Orensteen gives a careful comparative analysis of large representative series of measurements of Cairo-born natives, which shows strikingly how, from one race to another, the correlation of human organs (head measurements excepted) is practically identical, and from which the author summarises other conclusions in two sentences: (1) the distributions of human measurements—as, by the way, Quetelet originally pointed out—are approximately normal; (2) variability between human organs is not chaotic but governed by definite laws which enable us to predict measurements one from another. On the other hand, ordinary medical readers will not find it easy to follow all the reasoning in the paper of L. Isserlis on the partial correlation ratio, which is fairly stiff reading for a mind untrained in mathematics. The kernel of the nut is a contracted correlation formula which should be gratefully nutritious to biometricians if its substance is sound. But on this score its acceptance by the founder of biometry, who incorporates it in *Biometrika*, precludes any necessity for outside recommendation.

We regret not having more space to notice adequately Eveline Y. Thomson's carefully balanced contribution to the modern effort at constructing a new and sound knowledge of the human skull. As Crewdson-Benington student, Miss Thomson, with callipers and craniophor, has been working during the past 12 months on the crania of the Moriori in the museum of the Royal College of Surgeons of England. A very remarkable report of the investigation, which occupies over 50 pages of *Biometrika*, is from first to last a model of scientific care, lucidity, and restraint. It is accompanied by 22 admirable photographs of the skulls; it is based on a multitude of accurately observed details and laborious computations, none of them superfluous; and the commentary running through it, with which the author revives the past and explains racial connexions, contrasts, and affinities, extracts for us a very lively interest from the dried dead bones on which she has been working. The volume concludes with the usual "Miscellanea," and with it is issued an appendix containing invaluable records of the late Professor Weldon's mice-breeding experiments.

Since the beginning of the war the commercial neglect of science in this country has been much discussed and deplored, and has formed the substance of a memorandum to the Government. There is no doubt that this is a serious fact, although detachment from the commercial astuteness, which uses science for its own ends, may be not altogether without advantage for science. With *Biometrika* before us, however, it is perhaps not inopportune to comment on another aspect of this matter not stated in the memorandum referred to above—viz., how equally deplorable has been the indifference of legislators, administrators, and social reformers of all kinds to anthropology and social science, and especially to those fields of research where biometric methods are being pursued with ever-increasing fruitfulness.

Quarterly Journal of Medicine. Edited by WILLIAM OSLER, J. ROSE BRADFORD, A. E. GARROD, R. HUTCHISON, H. D. ROLLESTON, and W. HALE WHITE. Vol. IX., No. 34. January, 1916. Oxford: At the Clarendon Press; London, Edinburgh, New York, Toronto, and Melbourne: Humphrey Milford. Subscription 25*s.* per annum; single numbers 8*s.* 6*d.* net each.—The contents of this number are: 1. Multiple Telangiectases with Epistaxis of the Familial Type, by Robert Hutchison and W. Jenkins Oliver. An interesting account is given of three cases of this condition in one family, together with references to the other recorded cases and a good plate illustrating the appearance of one of the patients. 2. Some Functional Nervous Affections Produced by the War, by F. E. Batten. A short review is given of some of the neuroses which have been produced by the war, with illustrative cases divided into five groups. In the first of these are cases with defined paralytic manifestations, such as hemiplegia, monoplegia, and paraplegia of hysterical nature; in the second some cases of mutism; in the third instances of temporary loss of memory under physical and psychical stress; in the fourth some cases with tremor; and in the fifth group a case with unilateral spasm of the muscles of the face and jaw. 3. Acute Hodgkin's Disease, with Involvement of Internal Glands and Relapsing Pyrexia, by T. H. Whittington. A description is given of the clinical features of a case, the diagnosis of which was obscure during life, which proved at the post-mortem examination to be acute Hodgkin's disease. The chief features were an acute onset with a remarkable resemblance to typhoid, a relapsing course with signs suggesting portal obstruction, and an entire absence throughout of enlarged external glands. The general resemblance to a case of acute infective fever was very striking, and would seem to support the view that this disease is due to some

infective organism. 4. Pyelonephritis with Glycosuria, by J. H. Ryffel. A careful analysis of the clinical and chemical features of an unusual case is given in an interesting and suggestive fashion. The patient, a man aged 32 years, showed œdema of a distribution not usually associated with renal disease, together with dry skin, marked albuminuria, pus and casts in the urine, and lipæmia. After some time polyuria and a glycosuria of renal type developed. Bacteriological examination by Dr. Eyre revealed the presence of streptococcus pyogenes longus in pure culture. Vaccinations and later urotropin were used with successful results. 5. Paratyphoid Fever: a Study of Fatal Cases, by Bertrand Dawson and T. H. Whittington. In view of the comparative rarity of fatal cases of paratyphoid this account of 17 cases, 2 of paratyphoid A and 15 of paratyphoid B, with their post-mortem appearances, is of considerable interest. The paper contains an analysis of the chief symptoms and of the post-mortem findings, together with tables and six admirable coloured plates. 6. Nephritis in the British Troops in Flanders: A Preliminary Note by John Rose Bradford. It is recorded that an outbreak of nephritis occurred among the British troops in France beginning in March and April, 1915, with a specially high incidence in the summer months. Case sheets dealing with 1455 cases have been examined and the present paper deals with 571 of these in which casts were found to be present. It would appear that the cases were those of a distinct nephritis characterised by well-marked renal dropsy with rapid subsidence, frequent presence of bronchitis and dyspnœa, and uræmic manifestations such as epileptiform seizures of severe character and sudden onset. Other features were the rarity of inflammatory complications and an extraordinarily low mortality. It is also noteworthy that the cases occurred only in the British troops and not in the Indian. 7. Critical Review: The Protective Ferments of the Body, by R. L. Mackenzie Wallis. An interesting and detailed study of the Abderhalden tests and their significance is given. It is pointed out that recent work has tended to negative the principles of the method as laid down by Abderhalden, and that therefore other explanations must be sought.

Journal of Anatomy and Physiology. Conducted by Sir WILLIAM TURNER, K.C.B., Professor ALEX. MACALISTER, Professor ARTHUR THOMSON, Professor ARTHUR KEITH, and Professor ARTHUR ROBINSON. Vol. L. Third series, Vol. XI., Part 2. January, 1916. London: Charles Griffin and Co. Annual subscription, 21*s.* post free.—The present issue of the *Journal* is the second part of the fiftieth volume and the last to be published under the management of its great founder, the late Sir William Turner. For many other reasons than those implied by the position of his name at the head of the joint conductors of the *Journal* was the publication indebted to the great professor of anatomy, and it would be remiss to pen even the shortest note upon the present number of the *Journal* without recording the loss which anatomy has suffered by his death.—Professor J. Symington contributes a paper, which is in reality a study in criticism, entitled "Endocranial Casts and Brain Form." The paper should be read as a continuation of the Struthers lecture of 1915 by the same author, for the two together contain an elaborately worked-out collection of cold facts derived from the study of unromantic plaster and examined from the standpoint of stern common-sense. Amidst the uncompromising severity of plaster-of-Paris and unrelenting logic it is a relief to come upon the lighter touch of the misprint which represents Professor Elliot Smith's ability to "blot out" the details of the Piltdown cast.—Dr. J. S. B. Stopford sends a first instalment of a valuable paper upon the Arteries of the Pons and Medulla Oblongata. This piece of work has been carried out with thoroughness, and is of obvious utility. Apparently the bibliography appended, which includes 160 references, relates to the whole work and not only to this particular portion of it; though the editors of the *Journal* give no hint of this, nor even of what is obvious from the text, that the present paper is only a part of a continuous whole. If a paper cannot be published in one issue (and this at times is manifestly impossible), some note should be given as to the preliminary nature of the portion published, and a bibliography which refers to future contributions should not be included with a portion with which it has only partial concern.—These two papers occupy more than half of the *Journal*, and the remaining six contributions are short, though some are of considerable interest.—Dr. H. Drinkwater describes an unusual Hereditary Abnormal Segmentation of the Index and Middle Fingers, which he has found in 15 of 36 descendants of a family showing the anomaly. The paper is well illustrated by radiographs and diagrams.—Dr. W. Sohier Bryant traces in a series of mammalian types the site of transition of the ciliated epithelium of the nose into the squamous epithelium of the pharynx. This site of transition is variable, but is always in the region of the orifice of the Eustachian tubes.—Professor Kenelm H. Digby contributes a short paper on the Measurement of Diaphysial Growth in Proximal and Distal Directions. The paper deals with the growth of the limb bones, and its conclusions depend upon an acceptance of the author's statement that "the original artery which accompanies the initial invasion of the primitive cartilaginous rod by osteoclasts and osteoblasts enlarges and persists as the nutrient artery." No proof is adduced for this statement, and it is certainly one with which many embryologists would not be in agreement.—Professor F. Wood Jones describes the Genitalia of Galeopithecus, and finds in this type a near resemblance to the fœtal stage seen in bats.—Dr. G. I. Strachan will find most anatomists in concurrence with him in his criticism of the accepted description of the formation of the Popliteal Groove of the Femur, even if all do not follow him in the whole of the details of his own explanation.—Dr. Thomas Walmsley could have made his paper on Costal Musculature more valuable by turning to more primitive vertebrate types, and possibly this enlargement of his researches would lead to some modification of his present conclusions.

The Philippine Journal of Science, Section B, Tropical Medicine. Vol. X., Nos. 4 and 5.—The first number is entirely devoted to a Study of the Pathological Anatomy of Bubonic Plague, by Dr. B. C. Crowell, illustrated with five coloured plates. His conclusions are based upon the post-mortem examination of 75 fatal cases of plague, as well as upon his previous investigations. He divides bubonic plague cases into five classes or types: (1) uncomplicated cases; (2) those with early septicæmia or without superficial buboes; (3) those of the secondary pneumonic type; (4) those of the secondary meningeal type; and (5) those of the secondary cutaneous type. He points out that in bubonic plague, as in other bacterial infections, the infective agent may produce its most injurious effects sometimes in one part of the body, sometimes in another; and according to the parts most seriously involved several sub-types may be distinguished. The portal of entry is most frequently on the skin, less often on the mucous membranes. The plague lesions occurring in the various parts of the body are separately dealt with, as are also the associated lesions.—The second number contains three articles: (1) by Dr. David N. Roburg on the Rôle played by the Insects of the Dipterous Family Phoridæ in the Spread of Bacterial Infections, giving particulars of a series of experiments carried out with the cholera vibrio on Aphiochæta ferruginea, Brunetti. The Phoridæ are, it seems, only casually mentioned in the literature of this subject, and no previous experimental work, it appears, has been done with this family in relation to the carriage of disease. The Phoridæ are very small black or yellow flies, and owing to their minute size are likely to be easily overlooked. They breed in human excrement and are attracted by fæcal and putrefying material. Dr. Roburg seems to have demonstrated by his experiments that these flies are capable of disseminating cholera, as well as other filth diseases, such as enteric fever, bacillary dysentery, infantile diarrhœa, and the like. Hence he thinks that the Phoridæ in the Philippine Islands are worthy of serious consideration. (2) Dr. Robert B. Williams and Dr. John A. Johnston conjointly supply some Miscellaneous Notes and Comments on Beri-beri, giving an account of their experiments on fowls. We learn that Major R. McCarrison, I.M.S., had made cultures of an organism from the liver, spleen, kidney, and heart of birds in which polyneuritis had been induced by feeding on white rice. By injecting cultures of this organism he claims to have been able to reproduce a disease which appeared to be typical neuritis. Dr. Williams and Dr. Johnston repeated these experiments, but were unable to confirm any of Major McCarrison's essential findings. They also carefully examined the milk from the breasts of four women suffering from beri-beri, but with negative results. (3) An article on Pseudo-typhoid Fever (a variety of Japanese kedani fever) in Deli, Sumatra, by Dr. Wilhelm Schüffner, chief medical officer at Deli.

THE LANCET.

LONDON: SATURDAY, MARCH 18, 1916.

Neurasthenia and Shell Shock.

FROM the early days of the war attention has been directed to the probable dire results which were to be expected from the use of high explosives and from the awful experiences which must inevitably ensue. Based upon a very imperfect acquaintance with the procedure adopted by the military authorities, there was at one time quite a formidable campaign of invective directed against the inhumanity of treating men with nervous symptoms as though they were either insane or malingerers. It was too hastily assumed that no middle course would be recognised, and that these unfortunates would be either certified as lunatics or else returned to duty or discharged from military service with an inadequate pension. These views, which are entirely erroneous, caused much needless anxiety to many public officials. Questions asked in Parliament and letters addressed to the press served only to distract those who hastily took sides for or against the authorities. The delight of a supposed grievance, within the comprehension of every intelligent thinker, stimulated much ignorant invective. To the non-medical mind there is always something attractive in the contemplation of strong contrasts, hence it was argued that the soldiers in question must be either sane or insane, and that they must be dealt with accordingly. In the heat of controversy no count was taken of the difficulty so often experienced by alienists in dealing with border-line cases. It is, however, essentially in the study of border-line cases that true progress can be effected. Frontiers in medicine, as in geography, are artificial boundaries established in a more or less arbitrary fashion. Different names are assigned to the nations on either side of the border, but so far as the people are concerned these demarcations may mean very little. In medicine there is a neutral zone, a no-man's land, a regnum protisticum, which really defies definition. This nebulous zone shelters many among the sad examples of nervous trouble sent home from the front, and it is only by accumulation of facts that we can hope for new definitions of permanent value. The term "neurasthenia" applied to many of these cases has been of great service in allaying public anxiety. It is commonly associated with an idea of a tedious, troublesome malady in which there is fair ground for hope of recovery under favourable conditions. It does not denote any permanent structural change in the nervous system, and it is therefore assumed that it is well within the reach of remedial measures. It is, however, of such limited application in medicine that it could not be expected to reign alone. "Neurasthenia" has hitherto been made to include many examples of defects of memory, of vision, of smell and taste, as well as many disorders of cutaneous sensibility, but the sudden appearance of all or some of these symptoms in healthy young males gave an impetus to fresh research and to the introduction of a new term "shell shock," which indicated the immediate exciting cause, without attempting further explanation.

The Lettsomian lectures by Major F. W. MOTT, upon the Effects of High Explosives upon the Central Nervous System, and the papers by Lieutenant-Colonel CHARLES S. MYERS, upon the Study of Shell Shock, will be read with interest by all who desire to become acquainted with the latest phases of scientific investigation and speculation concerning this subject. Both writers are well equipped by previous study and training, have done first-class and original work in other but cognate spheres, and have had unusual opportunities of making a large number of observations. Their contributions therefore merit the respectful consideration of all who desire assistance in lifting the veil of obscurity which still bewilders many who have to deal with isolated examples of this condition. Even since the term shell shock has been employed there has been a tendency to consider that the cases might be divisible into two classes. One class has been assumed to include various exaggerations of pre-existing forms of mental deficiency, the second has been held to be akin to hysterical manifestations; and many have thought that the symptoms might, to some extent, be due to imitation, more or less under the control of the individual. The number of cases now investigated appears to afford conclusive evidence that the subject of shell shock is not lightly to be disposed of on either hypothesis. It is not so clear, however, that the keenest investigation has yet supplied a satisfactory answer to all the doubts which have been expressed. Both Major MOTT and Colonel MYERS lay stress upon the terrible experiences through which the sufferers have passed. In particular Major MOTT gives gruesome details of the terrifying sights and sounds and of the harmful results likely to arise from the repetition of these in the form of dreams. Colonel MYERS, in the paper published in our current issue, attaches great importance to the influence of past history, giving interesting examples of complaints of pains in parts of the body previously the site of pain, such as occurs with a ruptured kidney or in severe pleurisy. This, the psychical side of the question, apparently does not satisfy Major MOTT, who endeavours to trace or to suggest some definite structural or pathological change in the central nervous system. He assumes that though there may be no evidence to show that the living matter is altered, the whole symptoms point to a physical or chemical change and a break in the links of the chain of neurons which subserve a particular function. Whether this break in the chain is the result of some change in the

"intercalary" neurons, or whether the theory of "diaschisis" is important, or whether the "intercalary" neurons really possess amœboid movements remain as yet subjects for speculation. Major MOTT touches upon all these points, but he also attaches importance to physical trauma—concussion or "commotio cerebri"—and he appears to allow for some chemical changes due to poisoning with CO, and for the resulting deoxygenation of the blood. Other suggestive remarks are that the sudden death from the shock of a high explosive may be due to altered pressure of cerebro-spinal fluid upon the medullary centres, or to the sudden liberation of nitrogen suspended in the blood, and its transformation into bubbles of gas which cause instant death. We particularly draw the attention of our readers to the third of Dr. MOTT'S lectures, which was published on March 11th, and which, by the way, appears to cast some doubts upon many of the hypotheses in the earlier lectures. He mentions the similar manifestations of "mutism" from shell shock and of hysterical mutism, and states that there is nothing new in these functional disturbances and disabilities of speech and special senses, except it be their severity and frequency in men the subject of shell shock. Medical officers who do not happen to be specialists in neurology will be encouraged by this remark to make close observations upon their patients.

Medical men, while grateful for these interesting lectures and papers, may feel in entire agreement with Major MOTT'S concluding remark: "We shall want a brand-new Dictionary." There are numerous new terms as well as old terms employed with "a newly earned meaning" by both Major MOTT and Colonel MYERS; whether they will remain as permanent acquisitions will probably depend on the general recognition of their utility, of which the future must be the judge.

Education and Infant Welfare.

UNDER the above title Sir GEORGE NEWMAN, the chief medical officer of the Board of Education, has issued a reprint from his general report for 1914, with an additional appendix, which should prove not only of interest to the medical profession, but to that ever-enlarging section of the public also which concerns itself with the welfare of infants and children. Important as hereditary and antenatal influences undoubtedly are with respect to the survival and health prospects of the individual, facts are accumulating to show that with improved methods of "nurture" some of the most serious consequences of the so-called inborn or natural defects can be immediately ameliorated or even in some cases entirely eradicated. The environment in its widest interpretation is now held to be a mightier factor in the destinies of the individual than in the days when rampant Weismannism held less disputed sway. There is possibly no difference in kind, though there certainly is in degree, between the influences of the environment which take slow effect on the individual's ancestral past and those which exert a more immediate effect on his embryonic or postnatal evolution. The individual is the composite result of environmental forces which have acted or which act upon his organisation at every period of his development. The ancestral past is beyond recall, except in so far as the ambition of the eugenists may presume to interfere, but we are beginning to see more and more clearly that so-called congenital defects, as well as inborn and acquired nutritional disorders, are largely under the control of the human will. As the chief medical officer of the Board of Education points out in his report, "the environment of the infant is its mother"; its health and physical fitness are dependent primarily upon her health, her capacity as a housewife and her skill in mothercraft. In rearing its young the animal mother can rely on the almost infallible guidance of instinct which represents the stereotyped and accumulated wisdom of the past. The animal mother never makes mistakes through thinking for herself or through listening to the ignorant advice of interfering friends. The human mother, by reason of the priceless gifts of reason and intelligence, can avail herself not only of the accumulated experience of the past, but she can also acquaint herself with the results of contemporary progress, or even anticipate the discoveries of the future. Unfortunately the great majority of mothers do not know how to avail themselves of these great opportunities; knowledge must be brought to their doors and wisdom must be forced upon them.

In these directions schools for mothers, or, as they are better called, "schools of mothercraft," have done splendid service, and their record as summarised in the Board of Education's report is, indeed, one of which the nation may be proud. A great impetus has been given to the whole movement by the Government grants which are disbursed both by the Board of Education and by the Local Government Board. A public health circular just issued by the Local Government Board in Edinburgh sets forth the conditions under which grants will be made to similar schemes for Scotland. It is in many ways regrettable that differences of opinion should have arisen between two Government departments as to their exact spheres of interest in the administration and supervision of Infant Welfare Centres subsidised by these grants in aid. There are no real distinctions between the schools of mothercraft which draw their subsidies from the Board of Education and the maternity centres and infant clinics which draw theirs from the Local Government Board, though artificial lines of demarcation have, unfortunately, been set up in the clash of interests. In its relationship with the great educational movement the Board of Education has consistently encouraged the voluntary element, while the Local Government Board,

owing to its close association with the local health authorities, while by no means discouraging the voluntary enterprise, has shown its clear sympathy with the extension of the State or municipal side of the work. A review of actual results shows that most has been achieved where municipal and voluntary enterprise have proceeded hand in hand. The somewhat soulless machinery of official bureaucracy tends to become humanised by a leaven of irresponsible individualism, while the occasional impetuosity of voluntary enterprise may be sobered and chastened by the collective restraint of communal authority.

The reports of the two voluntary associations—namely, the National Association for the Prevention of Infant Mortality and the Association of Infant Welfare and Maternity Centres—may well be read alongside those of the two Government departments. The Propaganda Committee of the second of these societies claims to have been instrumental in establishing a total of 154 new centres in different parts of the country as the result of 14 months' work since the war began. In the service of this committee there have been employed six peripatetic organisers who have visited in all 248 rural and urban districts with a view to securing local coöperation in the starting of either voluntary or municipal welfare centres. Although this, the firstfruits, is eminently satisfactory, it probably by no means represents the final measure of a most commendable voluntary effort. The National Association has also contributed vastly to the excellent results which are now recorded in the infant mortality tables by the efforts which it has made to stir Parliament, the public health departments, the bodies responsible for the training of medical students and midwives, to a fuller sense of the importance of directly and indirectly improving the environmental condition of the infant and child by the better education of the mother.

A GENEROUS GIFT TO HOSPITALS.—Sir W. P. Hartley, of Liverpool, has transferred £10,000 4½ per cent. War Loan to London hospitals and £5000 to Liverpool hospitals in commemoration of his seventieth birthday. Some lay charities are also recipients of his generosity.

THE PROBLEM OF CHILD LIFE: TWO EXPERIMENTAL SCHEMES IN EDINBURGH.—In the report of the voluntary health visitors in connexion with the public health department, Edinburgh, special attention is called to two experimental schemes—the babies' open-air play-room, made possible by the grant of £100 from the public health department, and the effort to improve the knowledge of dietetics in the homes, made possible by the coöperation of, and grant from, the National Health Insurance Committee of Edinburgh. No fewer than 1500 women listened to a series of demonstrations on food values given by an experienced teacher deputed by the school board to speak to the mothers. Miss Gilmour found the women "shy and difficult" at first when she visited them in their homes. She states that many who had been in domestic service benefited by the demonstrations and practised the cookery at home. Others were remarkably ignorant of the diet suitable for a family and prejudiced against the cookery taught, with the result that they were led to buy ready-cooked food at a much larger cost than it would take to cook the dinner at home.

Annotations.

"Ne quid nimis."

THE NOTIFICATION OF VENEREAL DISEASE IN SWEDEN.

IN a general review last week of the recent report of the Royal Commission on Venereal Diseases we alluded to the absence of any recommendation in respect of notification as being reasonable, pointing out that medical opinion was much divided on the matter, seeing the difficulties which hedge about any practical methods of the sort. The proposal by the Swedish Royal Commission on Venereal Disease to make compulsory notification a more effective measure than has been the case in the past appears to have provoked trenchant criticism exactly illustrating these difficulties. One of the greatest objections to such a system is the invidious position in which it places the medical man, who is confronted with the choice of disobeying the law or violating his patient's confidence on a point requiring discretion and good faith. According to one proposal by certain members of the Commission, it should be incumbent on the medical profession to extract from the patient the conditions under which infection occurred. Neglect of this inquisition, it is further suggested, should be punishable. No doubt in many cases it is feasible for a medical man to make discreet inquiries of his patient as to how he contracted venereal disease; but in many other cases were these inquiries made compulsory tactful handling of the situation would be impossible. The Commission is reminded by one of its critics that the relations between patient and doctor are so delicate that they can satisfactorily be maintained only on the basis of strict professional secrecy. Any regulation at variance with a medical man's conscience and good taste must be discarded. The Commission is further reminded that in other countries where legislative reforms have ignored the conscience of the medical profession opposition has been effective enough to make the provisions of the law a dead-letter. In order that the tracking down of sources of infection may be facilitated, it has been suggested that the patient who reveals the source of infection should himself be immune from the discomforts and restrictions following notification. He is to be shielded in every respect, his identity is to be concealed, and even if his information is misleading, he is to be immune from the consequences of denouncing an innocent person to the authorities. Not only do these proposals place an effective weapon in the hands of the blackmailer, but they are also calculated to get members of the medical profession into serious trouble. For while the informer is protected by anonymity, the luckless medical man, who has been made the informer's tool, is exposed to the attacks of the innocent victim of the informer. The immunity which it is proposed should be conferred on the informer is regarded by many of the Commission's critics as most objectionable and unjust. It is quite unfair that the informer should be allowed to discontinue medical treatment at will, while his victim, who may not even be infected with venereal disease, is subjected to compulsory examination and, if infected, to compulsory treatment. With a little adroitness the worst sources of infection, by turning informer as occasion required, could escape every restriction imposed on their relatively harmless dupes. As for the relation of medical men

to such a system of notification, it is exceedingly probable that when it is learned that they are bound to notify venereal disease and track down sources of infection, many an infected man and woman would give misleading information. It has been suggested that the Commission's proposals should be modified so that the medical man consulted by a patient should not be forced at once to notify the source of infection, but should attempt to get into touch with this source himself and institute treatment on his own account. Only when he failed in this matter should he notify the case to the health authorities. Briefly as we have reviewed the Commission's proposals and the criticisms thereon, it is abundantly evident that the obstacles to an effective and satisfactory system of compulsory notification of venereal disease are many and great.

FRENCH MILITARY SURGERY A HUNDRED YEARS AGO.

IN his "Histoire de l'État et des Progrès de la Chirurgie Militaire en France pendant les Guerres de la Révolution," Briot, of Besançon, a distinguished surgeon of the Napoleonic era, compared French surgery at the beginning of the nineteenth century with that of the close of the eighteenth. The comparison was all in favour of the later period. In fact, his book, crowned by the Société Médicale de Paris in 1815, and published in 1817, is an ardent eulogy of the French military surgeons during half a generation of fierce war. Before their time static conservatism reigned supreme, but they were reformers in the best sense of the word. They found surgery stagnant and they left it active, progressive, and enlightened to a degree that appeared to him almost miraculous. He sums up the reforms and the progress effected in the wars of the revolutionary and Napoleonic epoch in 21 long paragraphs, which deal with the coolness and skill of the French military surgeons on the field and in the hospital, with sabre wounds, the rupture or section of the tendo Achillis, gunshot wounds, the treatment of wounds by incisions, amputations, wounds of the head, penetrating wounds of the abdomen, hospital gangrene, and so forth. In every case he proves that practice has been improved on a rational basis by such famous men as Larrey, Massot, Boi, Méhée, Dufouart, Heurteloup, Laurent, Leclerc, Fournier, Saucerotte, and our own John Hunter, who died within the revolutionary period and on the same day as Marie Antoinette. Briot justly boasts that French military surgery has in his epoch utterly outstripped that of Germany. He had himself seen the wretched wounded in German hospitals, and puts on record the *mot* of Siebold, surgeon-in-chief to the Austrian army, to French officers alarmed at finding themselves in the hands of German surgeons after the battle of Würzburg: "Consolez-vous, mes amis, vous êtes entre les mains d'un chirurgien Français." Siebold was a Teuton imbued with French ideas. Briot specifies no reforms in manipulation or technique with much exactitude, and only vaguely describes the superseded methods of the past. But on reading his book it at once becomes apparent that modern military surgery owes much of its spirit and practice to the time of Napoleon. Tetanus, in the then complete ignorance of bacterial origins, was still a mystery, but Briot notes that it affects the lower extremities, unprotected wounds, hospitals situated near batteries, exposed, neglected, and exhausted men, and patients treated with instruments or appliances not scrupulously clean. He is manifestly on the right road in his own practice. His description of his procedure may be taken as typical of the method and spirit of French military surgery a century ago, but very modern compared with what preceded it. Tetanus has been treated by every conceivable remedy, and amputation was recommended by Larrey. During ten years with the armies Briot claims to have been more successful with tetanus than his colleagues. "Dare I announce the cause?" he says, and goes on to describe the prophylactic measures which he employed in an unconscious adumbration of antiseptic treatment. Besides the extreme attention which he always paid to the routine of dressing he took care that dressings should be applied as gently and as seldom as possible, and that wounds should be kept from the contact of cold or deleterious air. Nothing cold or irritating was to be applied to the wound, which was not to be wiped. None but clean and sound instruments were to be used. The patient was to be shown that he was a favourite and that his surgeon was also his friend. The surgeon did all he could for his patient, and exacted the same conduct from his *aides*. If all sick people have a right to consolation, avers Briot, then the soldier, isolated from his friends, has a double right to it, and should find his surgeon the gentlest and kindest of consolers. It is a humane and beautiful conception worthy of the high traditions of France.

THINNESS AND LIFE ASSURANCE.

THE presence or absence of thinness is of definite importance to the medical officer of life insurance companies, since one of the factors on which estimation of risk is based is the constitution of the assured, of which thinness is one type. Some companies exact an extra premium on account of thinness on those whose weight is 20 per cent. below the standard, others take into account the relation between the height and the chest measurement; while others, again, rely on a "constitutional coefficient" calculated from a comparison of height, thoracic circumference, and weight. Dr. Romanelli, in *Il Policlinico* (Practical Section, Feb. 13th), draws attention to the great practical importance of the "bi-acromial diameter" in calculations of this kind. This diameter is measured from the extremity of one acromion to the other, passing in front of the thorax, and has the merit of having two fixed and easily found bony points and of being a fairly accurate estimate of the development of the body in breadth and of the thoracic development. Dr. Romanelli places the lives to be insured into two classes in this respect: those whose weight is 15 to 20 per cent. below the standard and those whose weight is over 20 per cent. below. He endorses the opinion of Dr. Havilland Hall that thin lives not exceeding 15 per cent of underweight should not be refused, but that those who pass this limit should only be accepted after a rigorous examination, and that if there is tuberculosis in the family a life below 30 years should be rejected.

VENOUS PRESSURE OBSERVATIONS IN CARDIAC DISEASE.

A NUMBER of different instruments and methods has been devised for estimating clinically the venous pressure. Perhaps the most convenient method is that devised by Hooker in 1914. It consists essentially in a small glass cup, 2 cm. in diameter and 1 cm. deep, connected with a water

manometer. The chamber is sealed to the skin over a suitable vein on the back of the hand by a rim of collodion. By compression of the air in the glass chamber the vein, as seen by oblique illumination, can be obliterated, and the register of such pressure, applied as in the ordinary sphygmomanometer by a bulb, can be read in centimetres of water. The pressure reading is taken at the point where slight oscillations of pressure cause the vein shadow to come and go promptly just before the vessel is completely collapsed. The hand must be kept at the "heart level"—that is, in the middle line of the body and at the level of the costal angle. The patient must be lying quietly and undisturbed. In some persons no vein is obtainable, either on account of fatness or œdema or unusually small veins; these must therefore be passed over as unfitted for observation. In the *Archives of Internal Medicine* for October, 1915, Dr. Admont H. Clark describes the method and also the results of his researches in a series of cases. Two hundred and seventy-six venous-pressure observations were made on 14 cases at various stages of cardiac decompensation. Systolic and diastolic pressures were also taken, and in most of the cases the fluid input and output was measured. It is found that about 20 cm. of water represents the upper limit of the normal pressure. There is some variation in pressure during the day: normally it is highest in the daytime, but, curiously enough, in cardiac cases it is usually found to be highest in the early morning hours. A pressure above 20 cm. marks the danger-line between compensation and decompensation. A rise of venous pressure is a bad sign, a fall the reverse. In the fatal cases examined there was always a rapid rise of venous pressure or a continuously high pressure above 20 cm. In this paper it is suggested that no relationship can be established between the venous pressure and either the systolic, diastolic, or pulse pressure (the difference between systolic and diastolic pressures). Venous pressure and urine output generally showed an inverse relationship, the change of venous pressure tending to precede the changes in kidney function. The coincident lowering of venous pressure with improved clinical conditions is very striking in some of the cases quoted in this paper, and as a means of prognosis the record of venous pressure appears to deserve a reasoned and careful trial.

RED LIGHT IN X RAY SURGERY.

THE use of a red lamp in the X ray room in order to render the retina sensitive to the green rays of the fluorescent screen is fairly common in practice. A further application of the same principle has, we learn from the *Scientific American*, been made by Professor Bergonié, of Bordeaux. Any operation involving the search for a foreign body is conducted under red light with the result that, when the greenish X ray illumination is substituted, the surgeon is immediately able to scrutinise the finer shades on the fluorescent screen since his retina is already accommodated. The method tends therefore to exactitude and the saving of valuable time. The light is furnished by a luminous dome of large size placed immediately above the operating table and containing 20 red lamps of 25 candle-power each. In view of the pretty generally accepted idea that foreign bodies in the tissues should be removed while the patient is on the X ray table, Professor Bergonié's practical suggestion may command general approval.

THE CONCENTRATION OF VITAMINES.

THE small fraction of vitamines usually given up by substances containing them is a serious handicap to elucidating their nature and composition, and is also a source of inconvenience in regard to their administration for curative purposes. Any method, therefore, which aims at concentrating vitamines will be welcomed. Such a method is described in the weekly public health report (Feb. 18th) issued by the United States Public Health Service by Mr. Atherton Seidell, technical assistant in the hygienic laboratory of this service. Apparently the best and cheapest source of beri-beri vitamine is brewer's yeast, which is treated by Mr. Seidell in the following way. The yeast is first subjected to pressure in a hydraulic press for the removal of the beer contained in it. The resulting cake is stirred with ice-cold water and again pressed out. It is then brought to a temperature of 37·5° C. and kept at that point for 48 hours, when an autolytic activity takes place, the material being converted to the consistency of thick soup. The fluid is then filtered through folded filter-papers and a clear red-brown filtrate is obtained equalling about 50 per cent. of the weight of the unfiltered material. The fluid keeps well (several months) if stored in a cool place. When administered in 1 c.c. doses on alternate days to a pigeon kept on an exclusive diet of polished rice, the bird did not lose weight or show symptoms within at least two months, the period of the experiment. A pigeon kept on polished rice without the yeast filtrate lost weight within the first five days and died with the typical paralysis of polyneuritis. When 1 c.c. of the yeast filtrate was given to completely paralysed pigeons a relief of this condition occurred within an hour, and to all outward appearances the pigeon appeared to be restored to health within 12 hours. Mr. Seidell next realised that although this yeast filtrate is very active, an effective dose for a man, based on the amount required for pigeons, would be about 200 c.c. He therefore set to work on a method of concentration. After a number of experiments made unsuccessfully with this end in view, he turned his attention to the possibility of using a medium which might exert a selective adsorption for the vitamine. Preliminary experiments proved that fuller's earths removed the vitamine from the autolysed yeast filtrate. The subsequent procedure was as follows: To a large volume of clear autolysed yeast filtrate are added 50 grammes per litre of colloidal hydrous aluminium silicate. The mixture is well shaken and allowed to stand several hours until the supernatant liquid is practically free of suspended solid. The deposit now contains most of the vitamines. The dark liquid is syphoned off, about an equal volume of water added and enough hydrochloric acid to yield an approximately N/100 acid solution. This acid addition serves to expedite the subsidence of the remaining suspended matter. All the sludge is now collected, and after repeated washing with weak acid transferred to a Büchner filter, washed with a little water, and finally with 95 per cent. alcohol. It is then spread out on a paper to permit of the evaporation of most of the alcohol and finally dried to constant weight in a vacuum desiccator containing concentrated sulphuric acid. In both preventive and curative experiments made with this material on pigeons the results agreed with those described for the product made with the ratio of 200 grammes of reagent per litre of yeast filtrate.

It was found that prompt and effective cures of completely paralysed pigeons resulted from 0·05 gramme doses of the activated solid, corresponding to 1 c.c. of the original yeast filtrate. On the basis of 60 kilogrammes as the weight of man as compared with 300 grammes for the pigeon, an equivalent dose of the activated material would be 10 grammes of the solid on alternate days or 5 grammes per day. According to Mr. Seidell, the material is practically tasteless and odourless, and apart from the vitamine which it contains is said to be an absolutely inert substance, producing no noticeable effects on passage through the organism. The preparation of other vitamines (e.g., potato) may be carried out on similar lines. It seems a pity, we think, that the colloidal substance or adsorptive agent used is a siliceous mineral the harmlessness of which may be doubted. It would be an improvement if aluminium silicate could be effectively replaced by an organic colloid.

PULMONARY SUPPURATION AFTER TONSILLECTOMY.

IN the *Interstate Medical Journal* Dr. H. Wessler has published a careful study, principally skiagraphic, of the pulmonary inflammation due to aspiration, which sometimes follows tonsillectomy. He applies the term "lung suppuration" as more accurate than abscess or gangrene of the lung, which describe only a possible phase of the process. At the Mount Sinai Hospital, New York, he has examined with the X rays eight cases of pulmonary suppuration following tonsillectomy. These formed as high a percentage as 28 of all the cases of pulmonary suppuration observed in the same period. In all a general anæsthetic had been administered—a procedure which stands in close relation to the complication. After an incubation period of a few days symptoms of bronchopneumonia begin. Later, evidence of suppuration—chills, high fever, and purulent expectoration—supervenes. In practically all the cases the sputum was foul at some time or other. This is some justification for the designation of gangrene of the lung, but the latter is a subordinate lesion. The putrefactive organisms usually cause small areas of gangrene, and as these are sloughed out the sputum becomes fœtid. Periods of gangrenous sputum alternate irregularly with others in which there is no distinctive odour. Hæmoptysis is a very constant symptom and varies from a slight brownish discolouration of the sputum to the expectoration of a pint of blood. Pain is frequent and is due to associated pleurisy. A predilection for the right lung was noted (six of the eight cases) and any lobe may be affected. The physical signs are frequently not distinctive and are of the least value in diagnosis. As a rule, an area of dullness of varying extent is demonstrable with but few changes in the respiratory sounds, which are frequently diminished. In not one case were there signs of a cavity. There is evidently consolidated and poorly aerated lung, sometimes covered by thickened pleura. In six of the cases spontaneous recovery took place in from six weeks to five months. In one case recovery took place after two years—following excision of carnified lung. The remaining case is still unimproved. Skiagrams show an infiltration of the lung of varying extent. In five cases a cavity was demonstrated, in some with a fluid level which shifted on a change of position of the patient. The shape of the infiltrated area varied; in some a lobar distribution was seen; others gave the impression of a residual infiltration involving only a small portion of a lobe. Unless the lower lobe is involved there is no restriction of the movement of the diaphragm. When present, cavities are easily recognised as lighter areas of circular or elliptical shape within the shadow of infiltrated lung. In two cases they were multiple and in two located at the hilus. When filled with secretion they may be invisible, but come into view after copious expectoration. The process of cure may be followed by the Roentgen rays. The infiltration gradually becomes less dense and fades at the periphery until it disappears, leaving perhaps a few thickened strands for some time. But clinical cure may be associated with persistence of the infiltration. Whether in such cases recrudescence follows cannot be said.

THE METROPOLITAN WATER-SUPPLY.

THE report on the condition of the Metropolitan water-supply during the month of November, 1915, is of more interest than usual, since in London the mean temperature was 39·2° F., or 4·3° below the average, being the coldest November, with three exceptions, since 1858. The rainfall was 2·31 inches, being 0·03 inch below the average. On the face of it the prevalence of cold weather would appear to diminish slightly the purity of both the raw and filtered supplies. Thus all three raw waters deteriorated as judged by the albuminoid nitrogen, permanganate, turbidity, and colour tests, while the filtered waters either deteriorated or showed no change as indicated by the same tests, excluding turbidity. Both raw and filtered waters gave results as a rule worse than their respective averages. Again, the three raw waters contained more bacteria than their respective averages, but the filtered waters yielded, generally speaking, not unsatisfactory results. In November, 100·0, 95·4, and 49·9 per cent. of the samples of raw Thames, Lee, and New River water respectively contained typical B. coli in 1 cubic centimetre (or less) of water, but in regard to the filtered waters 77·9, 90·9, and 22·0 per cent. of the samples derived from the Thames, Lee, and New River contained no typical B. coli even in 100 cubic centimetres of the water, or as much as a hundred times the amount of water examined compared with the raw river water. London owes practically everything in regard to the purity of its water-supply to the efficiency of the storage and filtration processes, and the high standard is maintained in spite of varying meteorological conditions.

SUPPLY OF SYNTHETIC REMEDIES IN FRANCE.

THE introduction to the newest edition—the twenty-eighth—of Dr. Bocquillon-Limousin's useful synopsis[1] of new drugs for 1916 contains an article by Dr. Grimbert, a member of the Academy of Medicine, on the means to be taken against the invasion of French therapeutics by drugs of foreign origin. He is speaking not of pharmaceutical "specialities," but of chemical bodies of definite properties and constitution, and he frankly admits that at the present time the larger part of these products are of German origin. Many of them bear designations which have been registered as trademarks, and are indeed the only names for these products in common use or generally understood.

[1] Formulaire des Médicaments Nouveaux pour 1916, par H. Bocquillon-Limousin. Twenty-eighth edition. Paris: J. B. Baillière et Fils. 1916. Pp. 350. Price 3 francs.

To take a single instance. In the case of pyramidon, which is official in the French Codex, no other name exists except its impracticable structural one of dimethyl-amido-antipyrine, and the curious situation arises of a valuable synthetic drug in common use possessing only a foreign registered name. The Appeal Court recognised the absurdity of such a position in 1907 and decided accordingly against the validity of a trade-mark consisting simply of a name which was likely to become the usual and necessary designation of the drug or synthetic product. Since that time a series of 14 such names have been inserted in the Codex or its supplement—viz. (anglicised) aristol, aspirin, dermatol, duotal, salophen, sulphonal, trional, and phenacetin in the Codex; and collargol, dionin, heroïn, novocaine, urotropin, and veronal in the supplement. It is therefore only necessary to write veronal (Codex) and diethyl-malonyl-urea of any reputable make conforming to pharmacopœial standard will be supplied instead of the proprietary article. Dr. Grimbert suggests that this practice should now be extended to all the synthetic remedies in common use, and that in addition the protection afforded by a registered name should be strictly limited to a single period of 15 years, instead of being allowed, as at present, to be repeatedly renewed at the expiry of such period. The practical effect of such a measure may best be gauged by a study of the quantities of these drugs used by the hospitals of Paris alone during a single year (1913). These are given in kilogrammes as follows: aspirin 347, ichthyol 301, urotropin 167, antipyrin 148, dermatol 96, pyramidon 68, phenacetin 24, veronal 24, tannigen 17, aristol 17, sulphonal 16, collargol 15, salophen 12, and protargol 8.

THE National Council for Combating Venereal Diseases proposes to organise a comprehensive educational compaign to combat venereal diseases in all suitable ways, and especially along the lines laid down by the Royal Commission. This will involve arrangement for a number of conferences and courses of lectures, and the immediate issue of an authoritative summary of the principal conclusions of the report. These and other measures will need financial support, and the Executive Committee of the Council earnestly beg for the assistance of its efforts.

THE annual discussion of the Hunterian Society will take place at 1, Wimpole-street, W., on Wednesday, March 22nd, at 9 P.M. The subject chosen for debate—the Relationship of the Medical Profession to the State and the Community—is one which should attract a large gathering. The discussion will be opened by Dr. F. J. Smith, who will be followed by Sir John Collie, Dr. T. D. Lister, and Mr. F. Lawson Dodd.

Dr. S. G. Moore, medical officer of health of Huddersfield, in delivering the Milroy lectures at the Royal College of Physicians of London last week, dwelt on the preventable nature of the infant mortality in this country and on the means which can and should be adopted to reduce this reckless waste of infant life. Whilst fully recognising the effect which general measures of public health have exerted on the death-rate of infants as of the population generally, the lecturer attributed a much greater efficacy and a more rapidly appreciable result to special measures aimed directly at the saving of the infant life. A carefully reasoned discussion of these methods forms the text of the lectures which we shall publish in THE LANCET.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

SOME French observers have worked out a method of detailed physiological examination applicable to beginners in aviation, which has already met with high approval. In order to test the degree of self-control and of endurance the would-be pilot must begin by exerting with both hands a rhythmic and continued effort, which is inscribed on the tambour of an apparatus and automatically added up in kilos by a meter. He is then placed in front of a needle moved by clockwork one complete turn in a second. Immediately the subject is aware of any deflection of the needle he must arrest it by pressing on a lever. Finally, a tambour is applied to his thorax or to the pulse in order to gauge his respiratory and circulatory rhythm. He is then submitted to a violent and unexpected sensation, visual or tactile—a magnesium flash, a detonation, or a douche of ice-cold water. A rigid self-control may ensure no apparent emotion from the subject, but the tambour of Maret mercilessly registers the tremor of his hand, the acceleration of his respiration, the beating of his heart—in short, the organic impression. The organism thus betrays itself by the degree of its reflexes and in a manner more or less the persistence of its sensory response. A pilot should remain imperturbable not only morally but physiologically. In spite of fatigue, in spite of danger, his system must remain prepared to respond at once not only to the call of his will but to the reflexes aquired during his education and training. Like his machine, he must be a supple and unfailing organism. From the moment when his flight begins he must constantly adjust his apparatus to the three dimensions of space. If he misses the moment at which any inclination begins the necessary effort will become greater, because the acquired inclination will have had time to become more pronounced. Fatigue will also tend to increase, and to bring with it a muscular weakness which renders slower the production of the reflex. These two drawbacks form a vicious circle and the moment will ultimately come in which the apparatus leans beyond the possibility of return. To sum up, what is essential for a good pilot is a combination in one person of resistance to fatigue, emotional passivity, and very rapid motor reaction, and these factors should be registered with precision in any tests to which the candidate is submitted. There is in this physiological examination, conducted in the way suggested above, more than an ingenious adaptation of medical knowledge to the needs of a special corps. The method offers guarantees for the individual and for the army as a whole, and if its employment becomes general may effect a real economy of men and material.

Examination of the Aviator's Aptitude. Cure of Traumatic Deaf-Mutism.

M. Lortat-Jacob and M. Buvat have shown at the Medical Society of the Hospitals a series of six deaf-mutes whose condition followed on an explosion at a varying time previously. Employment of all the classical modes of treatment had produced no improvement. Examination of the ear revealed no trouble other than of a hystero-traumatic order. M. Lortat-Jacob and M. Buvat therefore had recourse to the violent action of ipecacuanha on the glosso-pharyngeal nerve in order to produce a sudden return of hearing and of normal voice. This

simple emetic method may be tried successfully, resulting in sudden cure in cases which have failed to respond to other methods of treatment.

A New Method of Auscultation for the Early Diagnosis of Phthisis.

It is generally believed that 60 per cent. of cases of pulmonary tuberculosis recover when recognised and treated at the outset, but early diagnosis is often difficult. At this curable stage of the disease any process which assists in revealing the existence of an early lesion is to be welcomed. Dr. Clover, as the result of earlier researches on vocal physiology, has demonstrated at the Hôpital Beaujon a new clinical application of auscultation of vocal resonance at a distance. His method of precise auscultation localises and amplifies the slightest alteration of the normal resonance due to increased density in the lung affected with tuberculosis and other infections, or damaged by wounds of the chest. By means of a novel arrangement the apparatus gives two simultaneous different sensory impressions which can be measured and of which one is the control. The practical character and utility of this research deserve to attract immediate attention.

Dermatitis Produced by Zeppelin Bombs.

In the case of several chemists who have handled substances contained in non-exploded Zeppelin bombs, M. Durelle has observed a dermatitis of rapid development. It consists of red squamous plaques presenting some fine vesicles and occurring especially on the face, with a maximum intensity on the eyelids and periocular regions, the conjunctiva remaining intact. The same lesions were found in less degree on the forehead and near the ears. The hands presented slight alterations, and in one case the external genitals were attacked.

March 13th.

SWITZERLAND.

(FROM OUR OWN CORRESPONDENTS.)

The Lessons of War Surgery.

AT the third annual meeting of the Swiss Society of Surgery held on March 5th at the University of Zürich under the presidency of Professor Th. Kocher (Bern), Professor Sauerbruch, of Zürich, spoke on various practical questions of war surgery, basing his experience on a stay of nine months at the German front and two and half months at a base hospital. He said that the stupendous size of the present warlike operations had necessitated a reorganisation of the whole ambulance service which had taken months to accomplish. As the first ambulances are just behind the line of fire and the rear ambulances situated in villages only 5–8 miles further back, the ambulance corps were often in grave danger in both places from accidental shell fire. It proved of vital importance for the direction of these services to be in well-trained hands with an organising chief. Surgeons already on the staff of a clinic in times of peace proved most competent. Prompt supply of food and drink and an ample use of morphia were the chief essentials in the first aid to the wounded, coupled with rapid removal to the rear of the slightly wounded men. Those who expected benignant wounds to occur in this war Professor Sauerbruck found thoroughly in error. Even rifle fire at the short distances of 50–250 yards proved most destructive to bones and soft tissues owing to the form and velocity of the projectiles. Such wounds at first caused the erroneous idea that dum-dum bullets had been used. Shell-fire was most destructive and damaged tissue to such an extent that necrosis ensued. Toxins and bacterial infection found ample scope and rapidly carried off many. In other cases so-called gas phlegmon occurred. This could be avoided by extensive excision of the damaged part, the knife cutting through healthy tissue and the wound left open. Thus the necessity for amputation decreased, as also the prevalence of tetanus and of phegmonous processes. Antitoxin treatment had proved useless against tetanus, and only the sulphate of magnesium treatment afforded a chance of recovery. For wounds of arms and legs proper fixation was of primary importance in all cases, even in those apparently involving only the soft parts. The question of transport should be determined by an experienced surgeon. Abdominal wounds, compound fractures, wounds of the thorax, and all fever cases should be transported as little as possible. The wounds of the thorax were generally severe, and the immediate mortality amounted to 40 per cent. A fifth of the remainder still succumbed to later complications at base hospitals. Abdominal wounds treated conservatively did very badly with a mortality of 95 per cent. Immediate active interference was desirable. Professor Sauerbruch had operated on 227 cases, among which all except 16 showed hæmorrhage or a lesion of the intestine. 44 per cent. of the cases recovered, and some were even fit for service again. Professor Sauerbruch concluded with the verdict that the surgery of war could not be improvised, but must be built up on the experience obtained in hospital practice in times of peace.

The Reimplantation of Ovarian and Testicular Tissue in Cases of Castration.

In the *Korrespondenzblatt für Schweizer Aerzte* of Feb. 12th Dr. S. Stocker, jun., of Lucerne, refers to the manifold detrimental and distressing nervous symptoms occurring as the result of castration in young individuals, some being so severe that suicide is attempted. The administration of organic extracts, first advocated by Dr. Brown-Séquard some 20 years ago, is expensive and often ineffective. Transplantations have been successfully performed by many operators (Moris, Glas, Cramer, Dudley, and others). Some technical details are of importance. Dr. Stocker transplants discs not thicker than 1/10 in. to ensure rapid vascularisation. Healthy parts of the tissue alone are used, thus excluding cases of malignant growths. In tuberculosis he ventures to transplant parts of tissue that appear healthy. In all cases interstitial tissue must be included, as this contains the vital substances in question. After the operation he employs 0·3 c.c. of a 1 per 1000 adrenalin solution to control oozing. Dr. Stocker refers at length to three cases, aged 28, 24, and 30 years respectively, all successfully operated two to four years previously. In one case in which laparotomy was necessary a year or more later he observed that the disc transplanted had not shrunk and was well vascularised. Dr. Stocker's successful work should stimulate others to try his methods.

Death of Professor Girard.

The death occurred at Geneva on March 4th of Professor Charles Girard, the eminent Swiss surgeon. His condition had given cause for alarm for a week previously, and an eleventh-hour operation proved unavailing. Professor Girard was one of the organisers of the first meeting, after the

Franco-Prussian War, of representative French and German doctors. This took place at Geneva in 1877, when the chair was taken by Carl Vogt. The outbreak of the present war marked the failure of the work of reconciliation to which Professor Girard had devoted many years of his life, and grief at this failure had undoubtedly undermined his health. One of his colleagues contributes to the *Journal de Genève* a sympathetic account of his career. Girard, he says, was born at Renan, in the Bernese Jura, in 1850. He studied at various German and Swiss universities and took his degree when he was 21. In the Franco-Prussian War he served in both armies, and at its conclusion was appointed to a professorship at the newly founded University of Strassburg. He later returned to Berne, where his professional skill and profound medical erudition soon won him a world-wide reputation. He was appointed director of the Surgical Clinic at Geneva in 1904. His colleague adds: "There is no need now to enumerate the services Girard rendered to medical science. But reference should be made to his wonderful skill and to the perfect certainty of the surgeon's hand. Whether it was a question of a delicate plastic operation to restore nose, lip, palate, or of one of the greater and more laborious abdominal operations, his absolute mastery of technique was equally evident to the spectator; not a hesitation, not an unnecessary or misplaced gesture, not the loss of sangfroid for an instant. His life of labour consumed his frame, and in spite of the fever occasioned by a severe attack of influenza he declined to interrupt his work. Pneumonia ensued, and the end came rapidly."

Invalided Prisoners.

The first stage in the work of bringing prisoners of war under treatment in Swiss health resorts has led to a total of 1247 being so dealt with—883 French and 364 German. The French prisoners have been distributed as follows: Leysin, 330; Montana, 200; Glion, Chernex, and Blonay, 136; Interlaken, Wilderswil, Brienz, and Meiringen, 217; and the German prisoners, 187 to Davos, the remaining 177 to Weggis, Gersau, and Brunnen, on Lake Lucerne. A commission of 20 Swiss military doctors is now visiting the prisoners' camps in France and Germany, at the request of the two Governments, to choose further invalids suitable for removal to Switzerland.

March 10th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Health of Calcutta.

IN spite of the severe and widespread epidemic of small-pox during the earlier part of the year, the general death-rate for 1915 was only 28·5 per 1000. This compares favourably with the rate for 1914, which was 28·3 per 1000, and is not very greatly in excess of the lowest death-rate ever recorded in Calcutta—viz., 27·2 per 1000 in 1911. The marked improvement in the health of the city which has taken place during the last few years is shown by the fact that in 1909, when small-pox was prevalent in epidemic form, the general death-rate rose to 34·1 per 1000. The outstanding feature of the vital statistics for the year was the outbreak of small-pox, which caused 2560 deaths out of a total of 25,595—i.e., it accounted for one-tenth of the total mortality. Such a terrible loss of life from an entirely preventable disease is greatly to be deplored, but until revaccination is made compulsory it may be a constantly recurring feature of the bills of mortality, to use a very expressive old phrase. Considering the ignorance and superstition of a large section of the population of Calcutta, the health department may be congratulated on having succeeded in vaccinating over 100,000 persons during the year. This constitutes a record for the department. Cholera, which is endemic in Calcutta and annually assumes an epidemic form, was much less prevalent than usual. The mortality from this cause was only 1611, as compared with 1893 in 1914. This is the smallest number of deaths from cholera recorded during the last 15 years. Undoubtedly the most satisfactory feature of the records of the health department during the past 12 months is the almost complete disappearance of epidemic plague from the vital statistics of the city. During the whole of 1915 only 191 deaths occurred from plague, a lower figure than has ever been recorded since plague first made its appearance in the city. Calcutta was officially declared free of plague on August 18th, 1915, and, save for the occurrence of one isolated sporadic case, has remained free ever since.

Bombay Health Bulletin.

Dr. J. A. Turner, the executive health officer, Bombay, has arranged to issue a monthly bulletin of the health of the city. The object of this bulletin is to keep the people in touch with the health conditions of the city and to provide them with information on matters concerning the public health. The first number of this bulletin (for December, 1915) contains hints as to preventing sickness, and these hints, we are told, will vary from month to month. Under the heading "General Information" directions are given so as to enable the public to apply for advice to the health department and other departments of the municipality. The prevailing seasonal illnesses during the month of December were diarrhœa, dysentery, enteric (or typhoid), malaria and other fevers, small-pox, and measles. To guard against sickness due to diarrhœa, dysentery, and enteric, Dr. Turner asks all to pay special attention to the milk and food supply. The bulletin contains many useful items of information, and will no doubt be found a valuable publication by the European community of Bombay city.

Lady Hardinge College.

The following staff has been selected for the Lady Hardinge Medical College and Hospital at Delhi, which was opened by the Viceroy of India on Feb. 17th:—Principal and professor of medicine: Miss K. A. Platt, M.B.; professor of midwifery and gynæcology: Miss Holtom, M.B.; professor of pathology: Miss Field, M.R.C.S.; professor of anatomy: Miss Murphy, M.B.; professor of chemistry and physics: Miss A. M. Bain, M.A.; professor of biology and physiology: Miss M. R. Holmer; superintendent of nursing: Miss Mackenzie. It is expected that tuition will begin next September, and the Government of India will contribute yearly to the annual maintenance charges.

Mobile Laboratory for Mesopotamia.

The St. John Ambulance Association has arranged for a motor launch fitted out as a mobile laboratory for river work in Mesopotamia. The launch and its fittings are the gifts of the Hooghly District Centre of the association, and special acknowledgment is due to Mr. Bradley Birt, I.C.S., magistrate and collector of Hooghly, for his

personal interest in the supervision of the construction of the launch by Messrs. Burn and Co., Howrah; to Major F. Norman White, I.M.S., for expert advice; and to Major E. D. W. Greig, C.I.E., I.M.S., for the trouble taken in equipping the laboratory with everything necessary for medical research. The launch recently left Calcutta en route for Bombay, where it will be handed over to the military authorities for transmission to the front. It will be in charge of Major S. R. Christophers, C.I.E., I.M.S., the director of the Central Research Institute, Kasauli, whose services have been placed at the disposal of the general officer commanding, and who has been selected as Deputy Assistant Director Medical Services (Sanitary) on the lines of communication in Mesopotamia.

The Cocaine Habit.

The Commissioner of Police, Calcutta, in a recent order to all police officers, states that cocaine cases which are sent up for trial by the police are mostly instances of seizures made by chance or on suspicion by officers on night rounds. Street hawkers are occasionally captured, and now and then a den is raided and consumers are arrested in large numbers. What is required is a special effort for the arrest and conviction of the large smugglers who finance the business and own large stocks. The Excise Deputy Commissioner states that special rewards will be given to officers who secure adequate punishment for an offender of this class. As the fine is, as a rule, easily paid out of profits, it is advisable, he states, to press the examining magistrate to impose imprisonment instead of a fine. A conference attended by representatives of the Excise Departments of Delhi, the Punjab, and the United Provinces was recently held at Delhi to discuss inter-provincial measures for the prevention of cocaine smuggling.

Feb. 14th.

REPORT OF THE MEDICAL OFFICER OF THE LOCAL GOVERNMENT BOARD FOR 1914-15.

THIS report has just been published as a supplement to the forty-fourth annual report of the Local Government Board. Under the stress of war conditions its length has been greatly curtailed, and in other respects its character has been modified as compared with its predecessors. Dr. Arthur Newsholme, medical officer of the Board, announces that the work of the Medical Department now centres almost entirely around the military position; accordingly the account of work undertaken in this connexion occupies a prominent place in his report.

Between the civil and military medical staffs there fortunately prevails complete harmony and collaboration, the advantage of which to both services is abundantly manifest. In August, 1914, official instructions were addressed from Whitehall to the medical officers of health throughout the country to coöperate with the military medical staffs of the several camps, offering such assistance as their local knowledge enabled them to afford. The general supervision of the work was entrusted to the Board's medical staff, many of whom were detached for this special service. Their duties, in concert with the army medical officers, consisted in safeguarding the health of the new troops, and especially in minimising the risks of infectious disease, which are inevitable where large numbers of men are massed together under temporary conditions. The medical staffs of both services being in almost daily touch, it has been practicable to deal effectively with local conditions inimical to health. The high efficiency of the Board's action is officially recognised by the Army Council, who cordially appreciate the assistance which, under central guidance, the local public health authorities have rendered since the outbreak of war. The Council declare that assistance to have been "invaluable in safeguarding the health of the forces and in preventing the spread of infectious disease to an extent which would been otherwise impracticable." Between the Naval Medical Department and the local sanitary authorities similar coöperation has been established, at the instance of the Admiralty, in so far as the naval camps, depôts, and billets are concerned.

From a volume easily obtained we select for comment two sections which appear conspicuously deserving of attention in view of existing emergencies. In the first, the general extension of provision for maternity and child-welfare centres is ably advocated; in the second, the recent behaviour of typhus fever in Europe is portrayed, with especial reference to its prevalence among our Allies.

Maternity Centres and Child Welfare.

Specially noteworthy among matters of war-time importance is an instructive memorandum by Dr. Newsholme on maternity and child-welfare centres carried out in connexion with domiciliary health visitation, as an essential part of national effort for the protection of infant life. This memorandum should be studied in relation to a report by the same authority on "Maternal Mortality in Connexion with Child-bearing," notice of which appeared at p. 1157 of our issue of Nov. 20th, 1915. Under war pressure Parliament has been induced to offer to local authorities, through the Notification of Births (Extension) Act, grants in aid of work done by those authorities or by voluntary agencies for the promotion of maternity and child-welfare work. In recent years such work has extended rapidly, partly by voluntary agency and partly under statutory authority. Most of the authorities of sanitary districts with populations of 20,000 have already started schemes of health visiting, and still smaller authorities are, or shortly will be, similarly engaged. Only when full advantage is derived by the local authority from the Births Notification Act can such work be undertaken with fair prospect of success. Thus equipped, the authority can provide for the early visitation of every house in which a birth has occurred, and suitable advice can be rendered by the health visitor. When a reasonably accessible "centre" exists, the mother is recommended to resort thither. But, inasmuch as a large part of the population live in remote country districts, long distances have sometimes to be travelled in order to reach the centre. Consequently, experience shows that only about a quarter of the mothers visited can be induced to attend. The establishment of a centre is usually the first step taken by a voluntary agency. Much valuable work has been done at voluntary centres by means of "infant consultations," the systematic weighing of infants, &c. But complete success cannot be achieved by such agencies unless associated with a complete system of house visiting as set forth in the report. In all cases it is necessary that the work of a centre should be directed by the medical officer of health, whether this is provided by the sanitary authority or by voluntary agency, so that effective coöperation may be secured between health visiting and the work of the centre.

Training of health visitors.—The Local Government Board are empowered to contribute half the salaries of health visitors; consequently that authority is entitled to prescribe the qualifications of these officers. Experience shows that the most useful qualifications of a health visitor are usually possessed (1) by a trained nurse, (2) by a certified midwife, or (3) by a certified female sanitary inspector. Whatever her previous training may have been, the personal characteristics of the health visitor are extremely important. Tact and knowledge must be combined, and the best health visitor is one who regards her work as a mission in life, and whose kindliness of disposition commends her to the objects of her care. It is essential that well-qualified women alone should be appointed, and that their remuneration should be adequate.

Antenatal and postnatal work.—The welfare of mother and child cannot properly be considered separately. About 40 per cent. of the total deaths of infants occur within a month of birth, and these are due largely to conditions determined by the mother's health during gestation. To secure medical supervision for the expectant or for the nursing mother and her child is the main object of the centre, where facilities should exist for medical consultations

[1] Wyman and Sons, Fetter-lane. (Cd. 8153) Price 6½*d*.

and for the giving of hygienic advice. Throughout the period of breast-feeding the infant's welfare depends absolutely on the mother's health, and after this period the infant's health is still liable to vary directly with the maternal well-being, which naturally limits the care she can bestow on her offspring. Experience proves the desirability of getting into touch with the mother before the birth of her child, and in order to obtain the best results for both, of attending to the health of the mother for some time after confinement. Hence the work of the centre, as respects both mother and child, must be antenatal as well as postnatal, and the same centre may conveniently be used for both purposes. The work of the centre must in no case replace the family doctor. On the contrary, as a result of the detection of early symptoms of illness many additional cases of illness will inevitably come under medical care for prompt, and therefore effective, treatment. By the willing coöperation of the local medical profession the value of a centre will be increased, and accordingly it is desirable that this should be invariably sought. The cost of a centre will, of course, vary with local circumstances. The Local Government Board are authorised to contribute a moiety of the sums spent on the upkeep of a centre when the expenditure is subject to their approval. The object of the antenatal work of the centre is to secure the removal of conditions adverse to the health of the expectant mother, and to ensure that the confinement shall take place in circumstances favourable to both mother and infant. The success of the postnatal work of the centre will depend on the efficiency of health visitation under the Notification of Births Act. There is no similar machinery for securing the *clientèle* for an antenatal centre. Its success, therefore, will depend mainly on the coöperation of doctors and midwives, and it is hoped that medical practitioners will encourage their poorer patients to attend the antenatal clinics. In order that all misunderstanding may be removed it must be an invariable rule that if anything beyond hygienic advice is required at the centre the family doctor should be informed, and that no treatment of patients would be undertaken except at his request. For the patients of midwives antenatal centres should prove most valuable. Where the authority conducting the centre is also the local supervising authority for midwives the inspector will be able to explain to them the advantages thus attainable. Health visitors likewise will be in a similar advisory position. It is only in those cases where the work of the centre is supplemented by judicious home visiting in order to secure compliance with advice tendered that the full advantage of the former can be hoped for. Systematic home visitation frequently leads to improvement in domestic cleanliness and to better preparation for the infant on its arrival. When this is continued after confinement the mother can often be persuaded to bring her infant for medical supervision at the centre. Moreover, the value of a centre depends almost entirely on the character of the medical advice available. In the words of the late Professor Budin, the distinguished founder of infant consultations, "An infant consultation is worth precisely as much as the presiding physician." This is even more true of the antenatal work of the centre. But the value of the operations of a centre is by no means exclusively medical. The work of the health visiting staff is improved by their contact with other workers and with the doctor. The efforts of the mother are reinforced by the counsel and help which she receives from the centre. And, incidentally, value attaches to the incentive derived from seeing other children well cared for. The well-disposed mother will appreciate the fact that others like herself value the health and welfare of her child.

Typhus Fever and the European War.

This section is from the pen of Dr. R. Bruce Low, a senior inspector of the Local Government Board. After a careful perusal, we regard it as presenting an excellent account of the past and present distribution of typhus in Europe. When the medical history of the war comes to be compiled the writer will doubtless express gratitude to Dr. Low for one of the soundest pieces of epidemiological work ever contributed by the Medical Department at Whitehall.

It has been well said that "the history of exanthematic typhus is written in those dark pages of the world's story which tell of the grievous visitations of mankind by war, famine, and misery of every kind." In most civilised countries much has been done in recent times to ameliorate life conditions among the poor, in consequence whereof there has been a significant decrease in the ravages of this pestilence, which previous to the war had almost disappeared from Western Europe. As a result of the present abnormal conditions typhus is again showing signs of attaining epidemic proportions in Central Europe. Accordingly, the time seems opportune for a brief account of this malady in the past as compared with the present. Moreover, we now learn that typhus is seriously endemic in Poland and Galicia, two of the countries now involved in military conflict. In view of the shocking lack of personal cleanliness at one time prevailing among the inmates of prisons and penitentiaries the frequent occurrence of typhus in gaols and houses of detention is easily explained. Nor is it surprising that occasionally when prisoners awaiting trial for months together appeared in the dock in their foul and verminous garments typhus infection was spread by them to gaolers and others, and sometimes even to the judge on the bench. In this way typhus is believed to have been conveyed largely from town to country villages by tramps and beggars imprisoned for minor offences. It is on record that this pestilence has been an almost invariable accompaniment of protracted military campaigns in the past. In such campaigns facilities for personal cleanliness are scarce, and change of clothing is often unobtainable for weeks or months together, the result being that soldiers become infested with lice. Under these circumstances the introduction of an incipient typhus case may lead to disaster, each patient in turn increasing the opportunity for the specific infection of more body-lice. The modern etiology of typhus, with the discovery that the body-louse is a vector of the fever virus, is of special interest in this connexion. In the Napoleonic wars "fever," probably typhus, is said to have caused serious disaster, 80,000 French troops having succumbed to it during the memorable retreat from Moscow. In the Crimean campaign typhus was rife among the British, French, Russian, and Turkish armies. In 1915 typhus appeared in Germany among the Russian prisoners of war as well as among the civil and military populations. In Austria, apart from Galicia, 1500 cases were observed during January, 1915, in provinces which for many years had been exempt from the disease. In the same month typhus became epidemic among Turkish troops in Erzeroum, causing, along with small-pox, at least 1000 deaths daily, among whom were those of several medical men. At the present time typhus is endemic in several European regions, the chief among these being Galicia and Poland.

Great Britain has in recent years suffered little from typhus, although some cases still occur in certain areas in the North of England, and in Ireland and Scotland. It is possible that sporadic cases, due to imported infection, may pass unrecognised, owing to the fact that few of the younger generation of medical men are familiar with the disease, many of them having never seen a case. During the 45 years 1869 to 1913 about 26,000 deaths from this disease occurred in England and Wales, and in the course of that period the incidence of attack is said to have almost steadily decreased.

France and Belgium.—Foci of typhus fever are said still to exist in certain parts of Brittany, including the Departments of Finistère and Morbihan; but with these exceptions the disease does not seem to thrive in France. After the great wars of the First Empire France suffered severely from "fever," probably typhus, the armies having brought back infection from Eastern and Southern Europe. Serious importation of typhus occurred on the return of the French armies from the Crimea, where they suffered severely. At least 10 per cent. of the troops are said to have been attacked, and half of that number perished. In 1893 about 1000 persons in the North of France appear to have suffered from typhus fever, about 100 of whom were medical men, sisters of mercy, or other attendants on the sick. Since that year typhus outbreaks have been rare in France, the deaths recorded having been very few. The disease has now almost disappeared from that country, as from other parts of Western Europe. In Belgium there were several outbreaks of fever, probably typhus, in the course of last century, but since then only sporadic cases have occurred. The disease is reported to have been present in Antwerp from 1903 to 1906, but it is not certain that the cases occurring were true typhus.

Russian Empire.—For many years past certain parts of this empire have been recognised as endemic centres of typhus, and from time to time the disease has become epidemic in one locality or another. Most of Russia's campaigns have been attended with outbursts of typhus. In the Crimean War about 100,000 cases were reported at Sebastopol, and later the disease became seriously prevalent over almost the whole of Southern Russia. From the important cities of Moscow, Warsaw, Petrograd, and Odessa typhus seems to have been seldom absent for many past years. In May, 1914, there was a sharp outbreak at Taganrog, on the shores of the Sea of Azov. Since the outbreak of war and the subsequent fighting in Poland typhus fever has been prevalent at Lodz, the prevalence extending to the surrounding villages that were occupied by the Germans. The disease has since been conveyed from Poland, presumably by Russian prisoners, to the internment camps in Germany, and has spread thence to the civil populations of the surrounding camps. It is probable that when the records come to be published the period 1914–15 will show a large increase of typhus in Russia generally, especially in the spheres of operation of the great armies and in the concentration camps.

Serbia.—In the course of the Balkan campaign Serbia suffered severely from typhus, which became prevalent among the troops in 1912. The epidemic was at its height during the spring of 1913. More than 100 cases were treated in the hospital at Belgrade, where the mortality was higher than in the military camps. Simultaneously with the epidemic in the army similar prevalence occurred among the Turkish prisoners of war in Serbia. Of 440 cases in one district 370 were Turks and only 70 Serbians. The disease was most fatal among the former. Apparently a fresh importation to Serbia of a virulent strain of typhus infection took place after the sanguinary battles of 1914, when about 70,000 Austrian prisoners were interned there. About Christmas of that year the disease broke out among 2500 Austrian prisoners interned at Uskub; up to March, 1915, about 1000 of these prisoners had been attacked, many of whom died. By this time the epidemic was widespread over Serbia. In the town of Kragujevatz there were in March 14,000 typhus cases. From certain towns and villages the whole population disappeared, having either fallen victims to fever or else fled elsewhere for safety. As usual in such epidemics, the medical attendants suffered heavily. Out of 360 Serbian doctors 100 succumbed to the disease. English, French, and American doctors and nurses were also attacked, many of them fatally. It is stated that owing to the pressure of applicants the hospitals became overcrowded. In one hospital with 1400 patients the staff at first consisted of 6 doctors and 12 nurses, but typhus killed 3 of the former and 8 of the latter, so that eventually only 3 doctors and 4 nurses were available for 1400 patients. At the date of the report the number of cases in this epidemic had not been published, but in February, 1915, it was stated that 500 typhus deaths were occurring daily. In an article published in England last August it was estimated that during the six months' duration of the Serbian epidemic about 80,000 persons were attacked. It is hoped that the crisis has now been passed, and that this terrible epidemic is dying out. Dr. Low gives interesting and full details of typhus incidence in several other European and Asiatic countries, and for those reference must be made to the volume itself.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE undermentioned have been entered as Surgeons for temporary service in His Majesty's Fleet: W. F. R. Castle and D. J. Max.

Fleet-Surgeon S. Croneen has been placed on the Retired List with a gratuity.

ARMY MEDICAL SERVICE.

Lieutenant-Colonel J. P. Silver to be temporary Colonel whilst Assistant Director of Medical Services of a Division.

Colonel C. E. Nichol, C.M.G., D.S.O., on completion of four years' service in his rank, is retained on the Active List.

ROYAL ARMY MEDICAL CORPS.

G. A. Bannatyne to be temporary Lieutenant-Colonel whilst employed at the Bath War Hospital.

H. A. Powell to be temporary Honorary Lieutenant-Colonel whilst employed at the Guildford War Hospital.

Temporary Honorary Major Sir John Collie to be temporary Honorary Lieutenant-Colonel.

T. E. Holmes to be temporary Major whilst employed at the Bagthorpe War Hospital.

Temporary Captain S. Fleming to be temporary Major.

B. Hudson to be temporary Honorary Major whilst serving with No. 2 Red Cross Hospital.

Temporary Captain L. Maclagan-Wedderburn relinquishes his commission.

The undermentioned temporary Lieutenants to be temporary Captains: S. D. Fairweather, E. Taunton, J. Caton-Shelmerdine, E. S. Gooddy, G. M. Mayberry, J. Kirton, H. Peters, W. F. Morgan, R. Condy, E. B. Leech, B. Wallace, H. E. Gamlen, E. L. Horsburgh, T. T. Higgins, G. B. Macgregor, T. Lovett, S. C. Westwood, A. Merrin, M. A. Swan, E. S. B. Eames, G. A. Borthwick, H. L. Mann, H. W. Ward, M. J. Mottram, D. F. Shearer, J. F. Steven, D.S.O., A. C. Giles, J. Ferguson, L. H. C. Birkbeck, T. J. S. Moffett, R. C. Matson, E. C. Hardwicke, S. J. Henry, S. W. Coffin, L. G. Brown, P. E. Lones, R. J. McN. Love, P. W. McKeag, A. Paterson, J. McCulloch, F. D. Atkins, J. T. Gunn, J. R. Murray, C. T. Neve, V. J. Woolley, H. G. Oliver, J. J. Crawford, J. McDonnell, J. S. Taylor, R. A. Steven, F. E. R. Laborda, C. McShane, and H. H. Sampson.

The undermentioned to be temporary Lieutenants:—E. K. Williams, J. McHaffie, C. D. Coyle, N. Garrard, L. G. Reynolds, H. Mohan, J. J. Tate, G. L. Pillans, W. L. Paterson, D. J. Bedford, E. L. Hopkins, L. J. O'Donovan, A. F. Wilson-Gunn, W. H. Pearse, J. R. Brown, C. B. Tudehope, A. Traill, M. Moran, L. M. Mayers, A. R. Mitchell, W. O. Welply, J. A. West, and S. McNaughton.

The undermentioned to be temporary Honorary Lieutenants:—A. W. Adams, N. M. Cummins, W. L. Thomas, L. ap I. Davies, and T. Anwyl-Davies.

The undermentioned temporary Lieutenants relinquish their commissions:—J. G. S. Macpherson, H. Porter, J. A. Cowie, W. Irving, E. Johnson, A. L. Grant, H. A. Sharman, J. H. J. V. Coats, A. C. Sandston, G. H. F. Graves, W. S. Baird, E. W. H. Cruickshank, L. Pern, A. W. C. Lindsay, C. H. L. Rixon, L. S. Morgan, and W. H. Lambert (on account of ill-health).

Canadian Army Medical Corps: Majors to be temporary Lieutenant-Colonels: J. E. Davey and P. G. Goldsmith. Captains to be temporary Majors: L. W. MacNutt, J. G. Hunt, and A. S. Donaldson. Lieutenants to be temporary Captains: R. Brault and S. Traynor. Lieutenants to be temporary Lieutenants: R. P. Smith and W. M. McLaren.

South African Medical Corps: To be temporary Lieutenant-Colonels: P. G. Stock (Officer of the Permanent Defence Force), A. B. Ward, G. H. Usmar, and G. R. Thomson. To be temporary Majors: T. L. Sandes, R. N. Pringle, C. M. Murray, R. A. St. Leger, H. C. Baker, E. F. B. Wilson, E. N. Thornton, M. S. Power, J. C. A. Rigby, and M. G. Pearson. To be temporary Captains: W. L. Gordon, H. R. Lawrence, S. Liebson, J. Grainger, A. G. Forbes, G. J. Joubert, T. Welsh, C. M. N. May, M. B. Lawrie, P. J. Monaghan, I. W. Brebner, E. B. Brooke, R. D. Parker, H. E. H. Oakley, A. R. Friel, W. Thomas, A. S. Wilson, J. Drummond, E. W. Dyer, and G. H. Coke.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Lieutenant (on probation) A. A. Duffus resigns his commission.

TERRITORIAL FORCE.

Royal Army Medical Corps.

London (City of London) Field Ambulance: Captain F. V. Denne, from Attached to Units other than Medical Units, to be Captain.

Lowland Field Ambulance: Lieutenant (temporary Captain) N. MacInnes to be Captain.

West Riding Field Ambulance: Major W. S. Kerr to be temporary Lieutenant-Colonel whilst in command of a Field Ambulance. J. M. Pringle to be Lieutenant.

Wessex Casualty Clearing Station: Lieutenant C. Telfer to be Captain. W. S. Richardson to be Lieutenant.

West Lancashire Field Ambulance: A. S. Parkinson to be Lieutenant.

South Midland Field Ambulance: E. G. Anderson to be Lieutenant.

London Sanitary Company: Captain D. P. M. Farquharson, from Attached to Units other than Medical Units, and Lieutenants A. E. Rayner, C. D. Edwards, and O. Cattlin to be Captains. W. Johnstone to be Lieutenant.

South Midland Casualty Clearing Station: Major P. S. Hichens to be temporary Lieutenant-Colonel whilst in command of a Casualty Clearing Station.

East Anglian Field Ambulance: Lieutenant R. D. Langdale-Kelham to be Captain.

Highland Field Ambulance: Lieutenant C. G. Skinner to be Captain.

Southern General Hospital: Captain H. B. Whitehouse is seconded.

Western General Hospital: Lieutenant L. Oldershaw to be Captain.

East Lancashire Field Ambulance: Lieutenant A. B. Thompson to be Captain.

London (City of London) Sanitary Company: Lieutenant G. L. Matthews to be Captain.

Attached to Units other than Medical Units.—To be Captains: W. L. Griffiths, late Captain, R.A.M.C. (T.F.), and Lieutenant W. P. Tindal-Atkinson.

The Territorial Decoration has been conferred upon Major M. J. Mahony, R.A.M.C. (T.F.), attached to the 9th Battalion Liverpool Regiment.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In the 96 English and Welsh towns with populations exceeding 50,000 persons at the last Census, 7742 births and 5971 deaths were registered during the week ended Saturday, March 11th. The annual rate of mortality in these towns, which had been 16·3, 15·7, and 17·8 per 1000 in the three preceding weeks, fell in the week under notice to 17·2 per 1000 of their aggregate population, estimated at 18,136,180 persons at the middle of the year 1914. During the first ten weeks of the current quarter the mean annual death-rate in these towns averaged 15·3, against a corresponding rate of 14·7 per 1000 in London. The annual death-rate last week ranged from 8·8 in Edmonton, 8·9 in Wakefield, 9·9 in Newport (Mon.), 10·4 in Walthamstow, and 10·6 in Southend-on-Sea, to 23·5 in Bootle, 25·7 in Gloucester, 27·0 in Liverpool, 28·6 in Carlisle, and 30·4 in Rochdale.

The 5971 deaths from all causes were 205 below the number in the previous week, and included 345 which were referred to the principal epidemic diseases, against 351 and 409 in the two preceding weeks. Of these 345 deaths, 124 resulted from measles, 85 from whooping-cough, 60 from infantile diarrhœal diseases, 54 from diphtheria, 13 from scarlet fever, and 9 from enteric fever, but not one from small-pox. The annual death-rate from these diseases was equal to 1·0, against 1·2 per 1000 in the previous week. The deaths attributed to measles, which had increased from 62 to 120 in the five preceding weeks, further rose to 124, and caused the highest annual death-rates of 2·6 in Stockton-on-Tees, 3·3 in Grimsby, 5·1 in Southport, 5·5 in Rochdale, and 6·0 in Swansea. The deaths referred to whooping-cough, which had been 133, 116, and 114 in the three preceding weeks, further declined to 85, of which 17 occurred in London, 10 in Manchester, 8 in Birmingham, and 4 each in Portsmouth and Liverpool. The fatal cases of diarrhœa and enteritis (among infants under 2 years), which had been 73, 57, and 65 in the three preceding weeks, fell to 60, and included 19 in London, 6 in Manchester, and 3 each in Leicester and Liverpool. The deaths attributed to diphtheria, which had been 61, 56, and 82 in the three preceding weeks, fell to 54, of which 13 belonged to London and 3 each to Tottenham, Stoke-on-Trent, and Birmingham. The deaths referred to scarlet fever, which had been 25, 14, and 17 in the three preceding weeks, fell to 14, and included 3 in London. The 9 fatal cases of enteric fever, of which 2 occurred in London, were equal to the average in the earlier weeks of the quarter.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had declined from 2257 to 1939 in the six preceding weeks, further fell to 1908 on Saturday last; 216 new cases were admitted during the week, against 215, 194, and 234 in the three preceding weeks. These hospitals also contained on Saturday last 1512 cases of diphtheria, 205 of whooping-cough, 101 of measles, and 54 of enteric fever, but not one of small-pox. The 1466 deaths from all causes in London were 66 fewer than the number in the previous week, and corresponded to an annual death-rate of 16·9 per 1000. The deaths referred to diseases of the respiratory system, which had increased from 224 to 373 in the five preceding weeks, fell to 344 in the week under notice, and were 98 below the number registered in the corresponding week of last year.

Of the 5971 deaths from all causes in the 96 towns, 226 resulted from violence and 470 were the subject of coroners' inquests, while 1847 occurred in public institutions. The causes of 67, or 1·1 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Sheffield, Leeds, Bristol, West Ham, Bradford, Hull, and in 62 other smaller towns. Of the 67 uncertified causes, 17 were registered in Birmingham, 8 in Liverpool, 5 in Manchester, and 3 each in Leicester, Bootle, and Rochdale.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns with an aggregate population estimated at 2,355,300 persons at the middle of this year, 1056 births and 846 deaths were registered during the week ended Saturday, March 11th. The annual rate of mortality in these towns, which had been 15·5, 16·2, and 16·2 per 1000 in the three preceding weeks, rose to 18·7 per 1000 in the week under notice. During the first ten weeks of the current quarter the mean annual death-rate in these towns averaged 15·7, or 0·4 per 1000 higher than that recorded in the large English towns. The annual death-rate last week ranged from 6·2 in Motherwell, 9·3 in Ayr, and 10·3 in Clydebank, to 22·9 in Coatbridge, 26·3 in Paisley, and 29·1 in Falkirk.

The 846 deaths from all causes were 116 in excess of the number in the previous week, and included 64 which were referred to the principal epidemic diseases, against numbers declining from 71 to 56 in the four preceding weeks. Of these 64 deaths, 31 resulted from measles, 8 from infantile diarrhœal diseases, 7 each from whooping-cough and diphtheria, 6 from scarlet fever, and 5 from enteric fever, but not one from small-pox. The death-rate from these diseases was equal to 1·4, against 1·0 per 1000 in the large English towns. The deaths attributed to measles, which had been 34, 28, and 23 in the three preceding weeks, rose to 31, and included 15 in Glasgow, 6 in Coatbridge, and 3 each in Edinburgh and Greenock. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had been 6, 8, and 8 in the three preceding weeks, were again 8 last week, and included 2 each in Glasgow, Edinburgh, and Aberdeen. The fatal cases of diphtheria, which had been 15, 8, and 10 in the three preceding weeks, fell to 7, of which 4 occurred in Glasgow. The 7 deaths attributed to whooping-cough were 4 in excess of the average in the earlier weeks of the quarter, and comprised 6 in Glasgow and 1 in Hamilton. The deaths referred to scarlet fever, which had been 11, 15, and 9 in the three preceding weeks, further fell to 6, of which 5 were recorded in Glasgow and 1 in Paisley. Of the 5 fatal cases of enteric fever 4 occurred in Glasgow and 1 in Dundee.

The deaths referred to diseases of the respiratory system, which had been 88, 126, and 134 in the three preceding weeks, further rose to 169 in the week under notice, but were 46 below the number registered in the corresponding week of last year. The deaths from violence numbered 29, against 30 and 21 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 19 town districts of Ireland with populations exceeding 10,000 persons at the last Census, 523 births and 474 deaths were registered during the week ended Saturday, March 4th. The annual rate of mortality in these towns, which had been 20·2, 18·8, and 18·0 per 1000 in the three preceding weeks, rose in the week under notice to 21·5 per 1000 of their aggregate population, estimated at 1,148,468 persons at the middle of last year. During the first nine weeks of the current quarter the mean annual death-rate in these towns averaged 19·0, against corresponding rates of 15·1 and 15·3 per 1000 in the English and Scotch towns respectively. The death-rate during the week was equal to 23·6 in Dublin (against 17·7 in London and 16·6 in Glasgow), 20·8 in Belfast, 15·6 in Cork, 12·7 in Londonderry, 25·7 in Limerick, and 17·1 in Waterford, while in the 13 smaller towns the mean rate was 22·9 per 1000.

The 474 deaths from all causes were 77 in excess of the number in the previous week, and included 43 which were referred to the principal epidemic diseases, against 30 and 29 in the two preceding weeks. Of these 43 deaths, 12 each resulted from measles and infantile diarrhœal diseases, 11 from whooping-cough, 3 each from scarlet fever and diphtheria, and 2 from enteric fever, but not one from small-pox. The death-rate from these diseases was equal to 2·0, against a corresponding rate of 1·2 per 1000 in the English and in the Scotch towns. The deaths attributed to measles, which had been 10, 9, and 9 in the three preceding weeks, rose to 12, and comprised 8 in Belfast, and 4 in Dublin. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had been 4, 5, and 7 in the three preceding weeks, further rose to 12, and included 5 in Dublin and 4 in Belfast. The fatal cases of whooping-cough, which had been 12, 11, and 7 in the three preceding weeks, rose to 11, and comprised 8 in Belfast and 3 in Dublin. The 3 deaths attributed to scarlet fever, of which 2 were recorded in Belfast and 1 in Londonderry, were equal to the average in the earlier weeks of the quarter. Of the 3 deaths from diphtheria 2 were recorded in Dublin and 1 in Waterford. The fatal cases of enteric fever occurred in Dublin and Lisburn.

The deaths referred to diseases of the respiratory system, which had been 83,, 68, and 92 in the three preceding weeks, rose to 95 in the week under notice, but were 85 below the number registered in the corresponding week of

last year. Of the 474 deaths from all causes, 157, or 33 per cent., occurred in public institutions, and 8 resulted from violence. The causes of 20, or 4·2 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest, and included 5 in Dublin, 4 in Belfast, and 3 each in Limerick and Wexford; in the large English towns the proportion of uncertified causes did not exceed 1·0 per cent.

In the 19 town districts of Ireland, 538 births and 540 deaths were registered during the week ended Saturday, March 11th. The annual rate of mortality in these towns, which had been 18·8, 18·0, and 21·5 per 1000 in the three preceding weeks, further rose to 24·5 per 1000 in the week under notice. During the first 10 weeks of the current quarter the mean annual death-rate in these towns averaged 19·6, against corresponding rates of 15·3 and 15·7 per 1000 in the English and Scotch towns respectively. The death-rate during the week was equal to 26·8 in Dublin (against 16·9 in London and 19·1 in Glasgow), 22·5 in Belfast, 24·5 in Cork, 13·9 in Londonderry, 33·8 in Limerick, and 20·9 in Waterford, while in the 13 smaller towns the mean rate was 24·9 per 1000.

The 540 deaths from all causes exceeded the number in the previous week by 66, and included 51 which were referred to the principal epidemic diseases, against 29 and 43 in the two preceding weeks. Of these 51 deaths, 18 resulted from measles, 13 from infantile diarrhœal diseases, 10 from whooping-cough, 5 from diphtheria, 4 from scarlet fever, and 1 from enteric fever, but not one from small-pox. The annual death-rate from these diseases was equal to 2·3, against corresponding rates of 1·0 and 1·4 per 1000 in the English and Scotch towns respectively. The deaths attributed to measles, which had been 9, 9, and 12 in the three preceding weeks, further rose to 18, and comprised 14 in Belfast and 2 each in Dublin and Newry. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had been 5, 7, and 12 in the three preceding weeks, numbered 13, of which 7 occurred in Dublin and 4 in Belfast. The fatal cases of whooping cough, which had been 11, 7, and 11 in the three preceding weeks, were 10 in the week under notice, and included 5 in Belfast. The 5 deaths attributed to diphtheria, of which 3 were recorded in Belfast, were 3 in excess of the average in the earlier weeks of the quarter. The 4 fatal cases of scarlet fever were registered in Belfast, and that of enteric fever in Lisburn.

The deaths referred to diseases of the respiratory system, which had been 68, 92, and 95 in the three preceding weeks, further rose to 124 in the week under notice, but were 34 below the number registered in the corresponding week of last year. Of the 540 deaths from all causes, 155, or 29 per cent., occurred in public institutions, and 8 resulted from violence. The causes of 23, or 4·3 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest, and included 7 in Dublin and 3 in Limerick; in the large English towns the proportion of uncertified causes did not exceed 1·1 per cent.

VITAL STATISTICS OF LONDON DURING THE YEAR 1915.

In the accompanying table statistics of sickness and mortality in the City of London and in each of the metropolitan boroughs are summarised for the year 1915. With regard to the notified cases of infectious diseases, it appears that the number of persons reported to be suffering from one or other of the ten diseases specified in the table was equal to a rate of 7·1 per 1000 of the population, estimated at 4,516,612 persons; in the three preceding years the rates had been 5·1, 6·7, and 9·0 per 1000 respectively. Among the various boroughs the rates last year ranged from 4·5 in Kensington, 4·7 in Hampstead, 4·9 in St. Marylebone, 5·0 in Chelsea, and 5·1 in Lewisham, to 9·0 in Greenwich, 9·1 in Woolwich, 10·0 in Shoreditch, 11·1 in Stepney, and 12·4 in Bethnal Green. Eleven cases of small-pox were notified last year, against none in the preceding year, but no cases remained under treatment in the Metropolitan Asylums Hospitals at the end of the year. Of these 11 cases 6 belonged to Fulham, 2 to Greenwich, and 1 each to Kensington, Bethnal Green, and Stepney. The prevalence of scarlet fever showed a considerable decline last year; 17,104 cases were

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING THE YEAR 1915.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1914.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.								Deaths from all causes.	Death-rate per 1000 living.†
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years)	Total.	Annual rate per 1000 persons living.		
LONDON...	4,516,612	11	17,104	9166	5	647	12	276	3894	701	98	31,914	7·1	3	2272	332	699	1146	120	2542	7114	1·6	72,399	16·1
West Districts.																								
Paddington	142,056	—	435	282	—	18	2	7	139	14	1	898	6·3	—	93	11	20	31	6	9	259	1·8	2,286	15·9
Kensington	170,847	1	426	174	—	20	1	11	88	40	1	762	4·5	—	111	11	16	21	2	68	230	1·4	2,607	15·2
Hammersmith	124,750	—	427	186	—	23	—	5	94	30	8	773	6·2	—	47	13	14	27	2	45	148	1·2	1,932	15·3
Fulham	158,849	6	619	271	—	14	—	24	92	20	2	1,048	6·6	3	122	20	27	50	5	78	30	1·9	2,349	15·3
Chelsea	63 791	—	144	105	—	19	—	5	33	10	3	319	5·0	—	40	5	6	8	—	14	76	1·2	1,116	16 6
City of Westminster ...	152,346	—	614	325	—	13	—	9	74	26	—	1,061	7·0	—	38	11	12	11	4	39	115	0·8	2,229	15·5
North Districts.																								
St. Marylebone	112,892	—	306	138	—	12	1	3	84	10	1	555	4·9	—	53	9	8	16	2	40	134	1·2	1,700	15·4
Hampstead	86,731	—	192	138	—	12	—	3	52	10	2	409	4·7	—	22	2	10	6	1	17	58	0·7	1 014	12·4
St. Pancras	212,497	—	1,009	440	—	36	—	13	204	37	8	1,747	8·2	—	64	22	24	51	8	102	271	1 3	3,527	16 6
Islington	324,764	—	1,332	626	—	27	—	23	203	40	15	2,266	7·0	—	152	40	58	106	5	164	524	1·6	5,562	16 8
Stoke Newington... ...	50,454	—	199	107	—	4	—	2	39	3	2	356	7 1	—	24	7	9	7	2	[illegible]	56	1·1	778	14·7
Hackney	223,724	—	762	407	—	40	2	9	223	36	—	1,479	6·6	—	67	7	29	43	6	122	274	1·2	3,259	14·7
Central Districts.																								
Holborn	45,881	—	158	70	—	6	—	2	24	12	—	277	6·1	—	19	1	11	12	1	13	57	1·2	759	16·7
Finsbury	83,212	—	441	133	—	6	—	6	57	10	—	653	7·9	—	54	10	9	46	1	83	202	2·4	1,643	19·6
City of London	17,129	—	58	50	—	3	—	—	5	1	1	118	6·9	—	4	—	3	1	—	[illegible]	11	0·6	308	18·3
East Districts.																								
Shoreditch	108,869	—	566	271	—	22	2	9	183	39	1	1,083	10·0	—	68	11	22	36	3	130	270	2·5	2,052	19·5
Bethnal Green	127,662	1	786	532	—	18	—	9	196	24	7	1,575	12·4	—	101	11	39	41	4	135	331	2·6	2,110	17·3
Stepney	273,265	1	1,539	1111	4	33	1	13	299	24	5	3,035	11·1	—	111	29	72	53	3	236	504	1·8	4,603	17·6
Poplar	160,222	—	475	307	—	18	—	13	188	22	5	1,028	6·4	—	118	9	54	72	5	173	411	2·6	3,046	18·9
South Districts.																								
Southwark	186,941	—	467	389	—	23	1	26	255	25	1	1,187	6·4	—	131	12	37	46	3	148	377	2·0	3,727	20·1
Bermondsey	124,213	—	367	225	—	21	1	7	125	18	2	766	6·2	—	110	9	21	79	3	134	356	2·9	2,504	20·2
Lambeth	296,724	—	904	434	—	33	—	27	180	44	5	1,627	5·5	—	102	19	45	49	13	139	367	1·2	4,944	16 4
Battersea	167,338	—	672	394	—	27	—	5	142	26	11	1,277	7·7	—	164	9	29	77	6	75	364	2·2	2.648	16 1
Wandsworth	338,998	—	1,321	732	1	51	—	11	191	51	11	2,369	7 0	—	165	22	54	66	9	117	433	1 3	4,195	12·5
Camberwell	282,020	—	851	405	—	26	1	16	210	24	1	1,539	5·9	—	95	8	30	40	6	146	325	1·2	3,918	14·8
Deptford	109,182	—	438	200	—	37	—	4	150	15	2	846	7·8	—	55	9	10	65	4	96	239	2·2	1,948	17·7
Greenwich	96,037	2	522	173	—	25	—	4	112	22	—	860	9·0	—	46	3	14	43	8	46	160	1·7	1,710	17·6
Lewisham	172,433	—	478	253	—	16	—	4	106	13	1	870	5·1	—	51	5	16	24	3	34	143	0 8	2,124	12·4
Woolwich	122,836	—	602	287	—	32	—	6	137	49	2	1,115	9·1	—	45	7	20	16	5	31	124	1 0	1,828	15·3
Port of London	—	—	4	1	—	7	—	—	5	1	—	18	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup. † The death-rates are corrected for variations in sex and age constitution of the populations of the several boroughs, the population of England and Wales being taken as the standard.

notified, against 17,552 and 25,015 in the two preceding years. Among the metropolitan boroughs the greatest proportional prevalence of this disease was recorded in Finsbury, Shoreditch, Bethnal Green, Stepney, and Greenwich. The Metropolitan Asylums Hospitals contained 2431 scarlet fever patients at the end of last year, against 2088, 3810, and 4431 at the end of the three preceding years; 16,327 cases were admitted during the year, against 10,488, 16,255, and 23,154 in the three preceding years. Diphtheria was rather more prevalent than it had been in either of the two preceding years; 9166 cases were notified during the year, against 7654 and 9118 in the two preceding years. This disease was proportionally most prevalent last year in Bethnal Green, Stepney, the City of London, Shoreditch, and Battersea. The number of diphtheria patients remaining under treatment in the Metropolitan Asylums Hospitals at the end of last year was 1476, against 1099 and 1663 at the end of the two preceding years; 8608 new cases were admitted during the year, against 6814 and 8444 in the two preceding years. Enteric fever was slightly more prevalent than it had been in either of the two preceding years, 647 new cases being notified, against 758 and 779 respectively. The greatest proportional prevalence of this disease was recorded last year in Chelsea, Shoreditch, Deptford, Greenwich, and Woolwich. The number of enteric fever patients admitted into the Metropolitan Asylums Hospitals during last year was 446, against 381, 415, and 470 in the three preceding years; the number of cases remaining under treatment at the end of the year was 50, against 51 and 68 in the two preceding years. The greatest proportional prevalence of erysipelas occurred in Shoreditch, Bethnal Green, Stepney, Southwark, Deptford, and Greenwich. The 276 cases of puerperal fever notified during the year included 27 in Lambeth, 26 in Southwark, 24 in Fulham, and 23 in Islington. Of the 701 cases of cerebro-spinal meningitis 51 belonged to Wandsworth, 49 to Woolwich, 44 to Lambeth, 40 each to Kensington and Islington, 39 to Shoreditch, 37 to St. Pancras, and 36 to Hackney. The 98 cases of poliomyelitis included 15 in Islington, 11 each in Battersea and Wandsworth, 8 each in Hammersmith and St. Pancras, and 7 in Bethnal Green.

The mortality figures in the table relate to the deaths of persons actually belonging to the several boroughs, and are obtained by distributing the deaths in institutions among the boroughs in which the deceased persons had previously resided; the death-rates from all causes are further corrected for variations in the sex- and age-constitution of the populations of the several boroughs. During last year the deaths of 72,399 persons belonging to London were registered, equal to a death-rate of 16·1 per 1000; in the three preceding years the rates were 14·3, 14·2, and 14·4 per 1000 respectively. Among the several boroughs the lowest death-rates last year were 12·4 in Hampstead and in Lewisham, 12·5 in Wandsworth, 14·7 in Stoke Newington and in Hackney, and 14·8 in Camberwell; the highest rates were 18·8 in the City of London, 18·9 in Poplar, 19·5 in Shoreditch, 19·6 in Finsbury, 20·1 in Southwark, and 20·2 in Bermondsey. The deaths from all causes included 7114 which were referred to the principal infectious diseases; of these, 3 resulted from small-pox, 2272 from measles, 332 from scarlet fever, 699 from diphtheria, 1146 from whooping-cough, 120 from enteric fever, and 2542 from diarrhœa and enteritis among children under two years of age. The death-rates from these diseases in the aggregate ranged from 0·6 in the City of London, 0·7 in Hampstead, 0·8 in the City of Westminster and in Lewisham, 1·0 in Woolwich, and 1·1 in Stoke Newington, to 2·2 in Battersea and in Deptford, 2·4 in Finsbury, 2·5 in Shoreditch, 2·6 in Bethnal Green and in Poplar, and 2·9 in Bermondsey. The 3 fatal cases of small-pox all belonged to Fulham. The 2272 fatal cases of measles were 416 more than the corrected average number in the five preceding years; of the total number 2066 were recorded in the first half of the year. This disease was proportionally most fatal last year in Fulham, Bethnal Green, Poplar, Southwark, Bermondsey, and Battersea. The 332 deaths from scarlet fever were 124 in excess of the corrected average number; this disease showed the greatest proportional mortality in Hammersmith, Fulham, St. Pancras, Islington, Stoke Newington, Finsbury, Shoreditch, and Stepney. The 699 fatal cases of diphtheria were 167 above the corrected average number; the highest death-rates from this disease were recorded in Holborn, Shoreditch, Bethnal Green, Stepney, Poplar, and Southwark. The 1146 deaths deaths from whooping-cough exceeded the average by 134; this disease was proportionally most fatal in Finsbury, Poplar, Bermondsey, Battersea, Deptford, and Greenwich. The 120 fatal cases of enteric fever were 26 below the corrected average number; the greatest proportional mortality from this disease was recorded in Paddington, Lambeth, Deptford, Greenwich, and Woolwich. The mortality from diarrhœa and enteritis among children under two years of age was greatest in Finsbury, Shoreditch, Bethnal Green, Stepney, Poplar, Bermondsey, and Deptford. In conclusion, it may be stated that the aggregate mortality in London last year from the principal infectious diseases, excluding diarrhœa, was 21·8 per cent. above the average.

Correspondence.

"Audi alteram partem."

THE PRESENT POSITION OF MIDWIVES.

To the Editor of THE LANCET.

SIR,—If, as may be hoped, the recent leading article and correspondence in your columns on the midwives question should lead those interested to endeavour to improve the present position of midwives, there are some general considerations pertinent to the matter which have not, I think, received sufficient attention in the past. Without venturing to express an opinion on the vexed question as to whether ultimately the needs of parturient women will best be met by an adequate supply of midwives or of medical practitioners, male and female, I would venture to point out to those who are working to increase the supply and improve the status of midwives the importance of having regard to the following points.

1. It is nearly always easier to create an efficient supply by stimulating a demand than to work on converse lines. Hitherto the midwives' movement has been chiefly characterised by efforts to increase the supply. Philanthropists have been active in promoting institutions for the training of midwives and in enabling women too poor to pay the very moderate educational fees of these institutions to secure admission to the courses of instruction without payment. Compared with the self-sacrificing energy devoted to the creation of this supply, of what appears now largely to be regarded as an inefficient class of midwives, little has been done to create an economic demand for efficient midwives. By an economic demand is of course meant a demand by women who are economically capable of paying for the services they require. The demand which creates a supply is not a mere desire, but a desire backed by the financial power which enables it to be satisfied if and when the supply is provided. The desire of Belgium for food fails to create a supply because the Germans prevent this desire from being associated with a capacity to pay for the food that is needed. By a strange irony the institutions designed to create a supply of midwives actually diminish such small economic demand as already exists. In order to provide practical experience for their pupils most of these institutions accept for gratuitous treatment by their qualified staff parturient women whose economic position would enable them to pay the moderate fees charged by midwives in independent practice. If an adequate supply of efficient midwives is to be provided, maintained, and made use of, greater attention must be paid to the provision and maintenance of an adequate economic demand. The length of the warning that a woman receives before the services of a midwife are required should enable her, with such help as may be thought necessary, to be placed in an economic position to pay for efficient professional assistance at her confinement.

2. The sudden, irregular, and emergent character of the call upon a midwife's services makes it necessary either that her remuneration for these services should be based upon a recognition that much of her time is necessarily unemployed, or that it should be supplemented by payment for some other occupation of such a nature that it can be set aside whenever an urgent midwifery call comes. A doctor's midwifery fee is fixed on the

basis that he or she is also engaged in and being paid for work as a general medical practitioner. If he were not so engaged the midwifery fee would need to be considerably larger. You, Sir, in your leading article suggest that perhaps the midwife's case could be met by her practising also as a visiting nurse. Whether this is a wise or safe arrangement would need discussion by experts in obstetrics and nursing. The suggestion would seem to indicate that you recognise that there is no true economic demand for midwives practising solely in that capacity. The irregular and sudden character of the midwife's call causes a great accentuation of the special rural difficulty to which attention is called in your columns. The coincidence of midwifery calls from different directions in medical practice is nearly always met by the mutual help of colleagues practising in the same area. Unless the remuneration of midwives is adequately raised by increase of fee or by provision of a well paid subsidiary occupation, it is impossible to look forward to a sufficient number being established in any but densely populated areas to make a similar arrangement possible.

Unless these primary economic considerations are recognised and met it seems doubtful whether any good purpose can be served by an increase in the length of a midwife's professional curriculum or in the standard of her previous education. These otherwise very desirable improvements would raise the value of a midwife's services, and *ipso facto* lessen the economic demand therefor.

I am, Sir, yours faithfully,

London, W., March 14th, 1916. LAURISTON E. SHAW.

To the Editor of THE LANCET.

SIR,—The honorary secretary of the British Hospital for Mothers and Babies, Woolwich, in speaking of trained midwives, in THE LANCET of March 11th, tells us that not 1 in 1000 "tries to ascertain and to prevent the complications that threaten her patient at the time of booking." But we are told that there are only about 5400 trained practising midwives in all England and Wales; according to which reckoning there would be only half a dozen in that number who give any antenatal care. Then why are we here in Fulham so blessed as to have all these settled in our district? What has Fulham done to deserve that the few midwives "who try to ascertain and prevent complications," &c., should practise here? I and my colleagues are constantly being asked to treat midwives' cases for minor and other ills, and it is for the medical man consulted to decide whether he takes the case (contracted pelvis or what not) with the midwife as nurse, or sends it to a hospital.

If a midwife keeps her rules (and all our midwives here do so), there can be little fault found with her work, which lies in normal cases. Possibly the Woolwich midwives prefer to refer their cases to the local medical practitioners rather than to the hospital of which your correspondent is the honorary secretary.

I am, Sir, yours faithfully,

Fulham, March 13th, 1916. J. J. EDWARDS.

MAGNESIUM SULPHATE IN THE TREATMENT OF GUNSHOT WOUNDS.

To the Editor of THE LANCET.

SIR,—In the discussion on the treatment of gunshot wounds at the Harveian Society on Feb. 24th, reported in your issue of March 11th, Sir Berkeley Moynihan referred to the treatment of these wounds by solution of magnesium sulphate and glycerine as introduced by me. The chief credit for placing it on a scientific basis belongs to Dr. W. J. Tulloch, late bacteriologist to the Northumberland War Hospital, now lecturer on bacteriology in the University of St. Andrews. He has pointed out that magnesium sulphate possesses a power of inhibiting the growth of streptococci in wounds and also of producing a type of granulation —flat, compact, and vascular—and other properties which all tend to rapid cleansing and healing of wounds without suppuration or loss of tissue.

We hope to publish at an early date the results of our investigations and the laboratory experiments carried out by Dr. Tulloch.

I am, Sir, yours faithfully,

Sunderland, March 14th, 1916. ALBERT E. MORISON.

GASTRO-JEJUNOSTOMY AND JEJUNAL ULCER.

To the Editor of THE LANCET.

SIR,—The points raised in Sir John Bland-Sutton's lecture in your issue of Feb. 19th are of great practical importance and require careful consideration on the part of surgeons. At the same time I venture to suggest that some of the conclusions reached are open to doubt. He says:

> With an unobstructed pylorus gastro-jejunostomy cannot be relied on to cure a chronic duodenal ulcer, and as it exposes patients to the discomforts and risks of regurgitant vomiting and jejunal ulcers I have gradually abandoned it as a routine measure.

Under modern conditions the risk either of regurgitant vomiting or of jejunal ulcer is so small as to be negligible, while the remote results of the operation hardly justify such a pessimistic pronouncement. I admit at once that gastro-jejunostomy is not an infallible cure; nevertheless it is a cure in such a high percentage of cases that it may be justly regarded as one of the most satisfactory of major surgical procedures.

Incidentally he questions the teaching that jejunal ulcer is due to the action of acid gastric contents on the jejunal mucosa, and he suggests that jejunal ulcer is the result of changes in the attached jejunal limb, the changes being the thinning of the jejunal mucous membrane and the disappearance of the valvulæ conniventes. A drawing of a specimen illustrating this condition is given. Now one swallow does not make a summer, and because in this particular specimen the change described is associated with a jejunal ulcer, it does not follow that the relation is one of cause and effect. I have myself seen this thinning of the jejunal mucosa on a number of occasions, and my belief is that it is due to some obstruction, and consequent dilatation of the jejunum, at the site of the anastomosis. The specimen illustrated appears to support this view, as the afferent jejunal limb is clearly hypertrophied and distended and there is a somewhat marked bend at the site of the anastomosis. This, however, is merely an opinion, but there are two indisputable truths which vitiate the argument. First, this thinning of the mucosa and absence of the valvulæ conniventes is certainly not the usual condition of the jejunal limb after gastro-jejunostomy; and secondly, when there is a jejunal ulcer this condition is by no means always present.

I must also once again express disagreement with the accepted view as to the rationale of gastro-jejunostomy, which is endorsed in the lecture:—

> The object of gastro-jejunostomy (Sir John Bland-Sutton says) is to divert the chyme from passing through

the pylorus, and the operation fails in its object because if the pylorus be patent the food continues to pass through it and in some instances ignores the new route.

This teaching is based on the assumption that the beneficial effects of gastro-jejunostomy are due to drainage; in other words, that the operation is a purely mechanical one. I am convinced that the success or failure of gastro-jejunostomy does not depend on whether the food leaves the stomach mainly by the pylorus or mainly by the stoma. Nor is more rapid emptying of the stomach the rule after gastro-jejunostomy. The one constant sequel of a gastro-jejunostomy is a definite alteration in the chemical composition of the gastric contents. Therefore I think we are justified in maintaining that the constant change resulting from the operation is the important factor rather than changes which sometimes occur and sometimes do not. I hold very strongly that the curative results of gastro-jejunostomy are due to its physiological and not to its mechanical effects.

Sir John Bland-Sutton emphasises the principle that direct treatment is preferable to indirect treatment, and he argues that pylorectomy being a direct method of treatment is preferable to indirect treatment by gastro-jejunostomy. Is, however, pylorectomy a more direct method of treatment than gastro-jejunostomy? Pylorectomy, it is true, removes the ulcer, but it does not remove the cause of the ulcer. Gastro-jejunostomy, by modifying profoundly the gastric contents, produces a condition promoting the healing of the ulcer, and is in reality a more direct method of treatment than pylorectomy.

Lastly, there is the point to be considered of the mortality rate of pylorectomy as compared with that of gastro-jejunostomy.

Sir John Bland-Sutton is such an accomplished surgeon that in his hands pylorectomy for ulcer is a comparatively safe operation. Still, in the hands even of the most skilful the mortality is at least 5 per cent., as compared with the 2 per cent. of gastro-jejunostomy. The proportion of cases in which gastro-jejunostomy is followed by jejunal ulcer is under 2 per cent. I would point out, moreover, that a considerable portion of the ulcers usually classified as jejunal occur at the anastomotic opening. Some years ago I suggested that these ulcers should be distinguished by the term "gastro-jejunal." These gastro-jejunal ulcers, which occur along or round the suture line, comprise about one-third of all the ulcers usually classified as jejunal. These ulcers occur not only after gastro-jejunostomy, but may occur along the suture line after pylorectomy. If pylorectomy were performed as a routine procedure for duodenal ulcer, in which the acidity of the gastric contents is usually high, the proportion of cases in which ulceration would occur along the suture line would probably be high. At any rate it is understating the case to say that ulceration along the suture line after pylorectomy is as probable as a gastro-jejunal ulcer after gastro-jejunostomy. We are left then with the risk of true jejunal ulcer, which under modern conditions is not greater than 1 per cent., while of those who have a jejunal ulcer, about half die as the result of it.

On physiological grounds I believe that the remote results of pylorectomy for ulcer will compare unfavourably with those of gastro-jejunostomy. Even if they prove as good, we have to consider that by treating a duodenal ulcer by pylorectomy we are substituting an operation with an immediate mortality of at least 5 per cent. for one with an immediate mortality of 2 per cent., and this to save one patient in 200 from the remote risk of death from jejunal ulcer.

I am, Sir, yours faithfully,

HERBERT J. PATERSON.

Upper Wimpole-street, W., March 11th, 1916.

SCHOOLS FOR MOTHERS.

To the Editor of THE LANCET.

SIR,—To your note on the Bristol Infant Welfare Association in THE LANCET of March 4th (p. 515) we should like to add a few details of the aims and practice of the two Schools for Mothers under the direction of the Bristol University Settlement.

The ideal of a school for mothers is a difficult one to realise. It is threefold. 1. It must be inspired by a club spirit. 2. It must be definitely educational. 3. It must be efficient on the medical side. The School for Mothers movement is, and must be, a voluntary movement. The Government cannot compel mothers to go to school by law. Yet it is equally patent to those who know the working classes that an educational movement which is merely philanthropic carries in it the seeds of its own complete failure. Outside charitable aid must not be given in the shape of doles. The two University Settlement schools especially are trying to work this out. The older school has its own committee, consisting of the officers and six members of the school, elected annually, with a representative of the Workers' Educational Association elected at its own council. The subscription has been fixed at 1*d.* a week or 4*s.* a year, and all matters of school organisation that are not strictly medical are brought before the committee. Drugs and food are all paid for and substantial contributions are made towards the week's holiday in the summer.

The work at a school for mothers is educative and preventive rather than curative, its aim being the production and maintenance of a better hygiene and a higher standard of health for the infants who are regular attendants at the consultations. A spirit of healthy emulation is promoted amongst the mothers, who become keenly interested in the progress made by their infants. The doctor in charge exercises a general supervision over the health of the infants, encouraging breast-feeding and eliminating errors in diet in the case of the artificially fed. He is often able to detect the early evidences of disease, more especially rickets, and can prevent malnutrition resulting upon insufficient or unsuitable food. It is as impossible as it is undesirable to treat cases of illness at the consultations. If any treatment be provided it is incidental and limited to the minor ailments of infancy and childhood, for which many mothers are in the habit of relying upon the advice of the local chemist. Cases of acute or serious illness are referred to a medical practitioner, hospital, or clinic, according to circumstances. In connexion with the two University Settlement schools a small clinic has been started.

We are, Sir, yours faithfully,

HILDA CASHMORE,
Warden.

LILY A. BAKER, M.B., F.R.C.S.Irel.,
Medical Officer.

University Settlement, Barton Hill, Bristol, March 6th, 1916.

MEDICAL MAGISTRATE.—Dr. Francis John Harvey Bateman has been appointed a justice of the peace for the County of London.

The War.

THE CASUALTY LIST.

THE following names of medical officers appear among the casualties announced since our last issue:—

Killed.

Surgeon-Probationer J. Johnston, R.N.V.R.

Died.

Captain W. Gem, South African Medical Corps, attached to the 10th South African Infantry.

Captain A. R. Chavasse, R.A.M.C., was educated at Oxford, where he graduated M.B., B.Ch. in 1911, and afterwards held appointments at Queen Charlotte's and at St. Thomas's Hospitals, London.

Unofficially Reported Died as Prisoner.

Surgeon-Probationer J. Hughes, R.N.V.R.

Wounded.

Captain J. H. Fletcher, R.A.M.C.

DEATHS AMONG THE SONS OF MEDICAL MEN.

The following sons of medical men must be added to our lists of those who have fallen during the war:—

Lieutenant D. D. Evans, 17th Royal Welsh Fusiliers, fourth son of Dr. R. D. Evans, J.P., of Blaenau Festiniog, North Wales.

Second Lieutenant H. A. Johnston, Royal Flying Corps, son of Dr. H. M. Johnston, of Stranorlar, co. Donegal.

Captain J. R. Landale, 2nd Queen Victoria's Own Rajput Light Infantry, son of the late Deputy Surgeon-General J. Landall, A.M.S.

Captain E. G. Bowhay, 1st Battalion Devonshire Regiment (T.F.), son of Dr. A. Bowhay, of Gunnislake, Tavistock.

MENTIONED IN DESPATCHES.

The names of Deputy Surgeon-General O. W. Andrews, R.N., and Fleet-Surgeon J. Murray, R.N., appear in the list of those who are commended for service in action in despatches received from the Vice-Admiral Commanding the Eastern Mediterranean Squadron, and covering operations on the Gallipoli Peninsula.

The Third Class of the Order of the Nile has been conferred upon Dr. J. B. Christopherson, and the Fourth Class upon Captain A. G. Cummins, R.A.M.C., and Dr. V. S. Hodson, M.V.O.

THE CENTRAL MEDICAL WAR COMMITTEE AND ENROLMENT.

At the last meeting of the Central Medical War Committee a scheme brought up by the Executive Sub-Committee for the appointment of conferences to discuss the enrolment scheme was adopted. The scheme had for its origin a meeting between the London Canvassing Committee and the chairmen and secretaries of the various Medical War Committees in the metropolitan area. This meeting proved the value of discussions at which representatives of local activities could be present, and the British Medical Association having agreed to pay the necessary expenses, four meetings or conferences will be held next week to which two representatives from each Local Medical War Committee will be invited, and at which members of the Central Medical War Committee will attend. The four selected centres are London, Leeds, Birmingham, and Bristol. To the meeting at Leeds on Tuesday, March 21st, the representatives of 59 Local Medical War Committees will be invited, when the discussion will be opened by Colonel R. A. Bolam, R.A.M.C.(T.). The meeting at Birmingham will be held on Thursday, March 23rd, when the representatives of 24 Local Medical War Committees will be addressed by Mr. Bishop Harman. The meeting at Bristol on Friday, March 24th, will be attended by Mr. T. Jenner Verrall, and to this meeting the representatives of 19 Local Medical War Committees will be invited. The London meeting is on Wednesday, March 22nd. This conference will comprise the representatives of 73 Local Medical War Committees.

Mr. T. Hennessy, the representative of the Irish Medical War Committee, attended the last meeting of the Central Medical War Committee and made a statement showing that Ireland needed no inducements to supply medical officers for military purposes. He mentioned, for example, that out of 107 newly graduated medical men at Trinity College, Dublin, 100 had joined the R.A.M.C., the other 7 being fully accounted for. He added that the number of medical men belonging to the Irish Poor-Law service who had joined the colours had produced a difficulty in finding substitutes.

It was officially stated at this meeting of the Central Medical War Committee that over 2000 medical men had been enrolled by the Committee, but that if the stated needs of the War Office were to be met the enrolment scheme would still need the close attention that it was receiving.

WAR SURGERY IN CAIRO.

We publish in another column an interesting paper on the results obtained at Cairo in the treatment of wounded Turkish prisoners, captured at the time of the attempted invasion of Egypt at the Suez Canal, by Professor Frank Cole Madden, the senior surgeon of the Kasr-el-Ainy Hospital, who describes the methods of treatment employed there. The conditions in the district where the battle was fought were very different from those obtaining in the north of France and Belgium, where the soil was highly manured. The site of the Suez battle was practically pure desert, and therefore, as might have been expected, the sepsis was, on the whole, not so severe as in the European zone. Professor Madden found that in those cases which were brought in soon after the battle the sepsis was fairly easily controlled, but when, as in some cases occurred, the wounded man was found only after a prolonged search, severe sepsis resulted. Various antiseptic solutions were employed to cleanse and sterilise the wounds, a 2 per cent. solution of iodine being used with good effect, and a solution of cyllin was also found very beneficial. Professor Madden describes in turn the treatment of the wounds of the different parts of the body, and for the details we must refer the reader to the paper itself. We will only draw attention to his advice that in cases of wounds of the thorax, if the case is doing well nothing more is wanted beyond putting the patient in the most comfortable position for breathing. This was generally sitting up in bed or in a chair with the head resting on a pillow on a bed-table. He considers that when a bullet is in the pelvis but is causing no obvious harm it is far better to leave it alone and not to attempt to search for it. He describes an interesting case in which a bullet had gone through one buttock, then straight across the pelvis and out through the other buttock, perforating the rectum on its way. The patient did well with drainage, though he suffered much pain in the rectum, but this was completely relieved by division of the external sphincter. The paper has many points in it well worthy of attention.

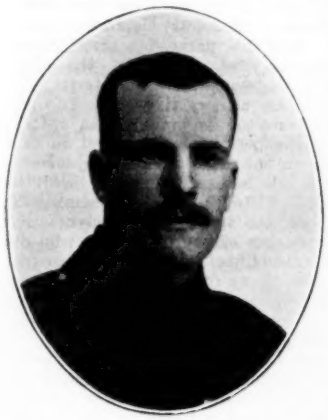
Lieutenant-Colonel W. H. Willcox, R.A.M.C., M.D., F.R.C.P., has been appointed consulting physician to the Mesopotamia Expeditionary Force, with the rank of Colonel.

OBITUARY OF THE WAR.

WILLIAM HOWARD NICHOLLS, M.R.C.S. ENG.,

CAPTAIN, ROYAL ARMY MEDICAL CORPS.

Captain W. H. Nicholls, who was killed by an accidental gunshot wound at Jhansi, Central Provinces, India, on Feb. 22nd, at the age of 24 years, was the only son of Mr. H. H. J. Nicholls, M.R.C.S., of Worthing, who was for many years in practice at Eastbourne. He was educated at Bradfield College and Guy's Hospital. Though near his qualifying degree at the London University, on the outbreak of war he passed the Conjoint examination and immediately entered the R.A.M.C., in which he was gazetted captain in 1915. He was a boxer and all-round athlete, and shared in the men's games, and was very popular with them. Whilst in medical charge of the Norwich Flying Corps he utilised his knowledge of mechanics and natural interest in machinery to learn to fly himself, and he was granted a pilot's certificate in January, 1916, an unusual distinction in the R.A.M.C. Soon after this he was ordered abroad and met his death not long after reaching India. In private life he was a keen sportsman and a small yacht owner, and there will be sorrow in many a Worthing fisherman's home for the loss of a liberal friend.



BERNARD BRADLY GOUGH, M.R.C.S. ENG.,

LIEUTENANT, ROYAL ARMY MEDICAL CORPS.

Lieutenant B. B. Gough, who was killed in action in France on Feb. 16th at the age of 42, was the son of the late Mr. H. Gough, barrister, of Redhill. Educated at Guy's Hospital, he took his Conjoint qualification in 1897, and after holding several house appointments settled in practice at Compton Martin, near Bristol, where he became medical officer and public vaccinator. In June, 1915, he joined the R.A.M.C., and was at the time of his death attached to the 8th Battalion South Staffordshire Regiment. A medical friend who knew him well for 20 years writes: "Few may have pierced his peculiar reserve, but to those who did there was a very different character beneath than that which was suggested on the surface. He was at his best with children in the open. A lover of wild things, he had the rare gift of opening the eyes of others to the beauty of the world around. But with adults he was peculiarly diffident, and one might have easily missed that kindliness, of which many a poor patient will tell to-day with tears, and that sterling character of which his intimates had ever fresh revelations." Lieutenant Gough leaves a widow, who is in command of the Gournay Court V.A. Hospital at West Harptree, near Bristol.

HENRY JOHN RUTHERFORD JONES, M.R.C.S. ENG.,

CAPTAIN, ROYAL ARMY MEDICAL CORPS.

Captain H. J. Rutherford Jones, who died at his home in Oakwood Court, Kensington, on Feb. 26th, aged 49 years, was the son of the late Mr. Robert Slade Jones. Born at Upper Clapton, London, he was educated at University College, and became a student at the London Hospital, taking the diploma of the Society of Apothecaries in 1890 and that of the Conjoint Board in 1892. After a resident hospital appointment he went several voyages to the East as surgeon in the P. & O. service. He was then in general practice for several years in Kensington, retiring in 1905. Captain Rutherford Jones was of a cheerful and optimistic disposition and a thorough sportsman in every sense of the word. On the outbreak of war he returned at once from a riverside holiday to offer his services at the War Office for a year abroad. From the middle of August, 1914, he served in France and Belgium with No. 12 Field Ambulance and was mentioned in despatches. At the expiration of the year Captain Rutherford Jones again offered his services, and was appointed to the Convalescent Hospital, Summerdown Camp, Eastbourne. While attending to his duties there he developed uræmia, the result of a progressive renal and heart disease due to the strains of active service. Throughout his illness he never complained, and the end came with acute œdema of the lungs. The close was a fitting sequel to the life of an unassuming and kind-natured man who displayed courage of the highest order to the last. Captain Rutherford Jones leaves a widow and step-daughter.

GEORGE SEYMOUR RUSSELL STRITCH, L.R.C.P., L.R.C.S. EDIN., L.A.H. DUB., J.P.,

CAPTAIN, 6TH BATTALION, CONNAUGHT RANGERS.

Captain G. S. R. Stritch, who was killed in France on Feb. 7th at the age of 42, held a combatant commission. He was the second surviving son of the late John R. Stritch, K.C., of Dublin, and a cousin of Sir Edward Carson and General Sir Bryan Mahon. Educated at the Royal School at Armagh, he studied medicine at Trinity College, Dublin, and afterwards in Edinburgh, where he qualified in 1895, winning the gold medal in medical jurisprudence and hygiene. He then became assistant medical officer of the Argyle and Bute Asylum. In 1902 he returned to Dublin, and was appointed resident medical officer of the Lock Hospital, where he formed the groundwork of his knowledge of the subject in which he afterwards specialised. He was a frequent contributor to medical literature: "The Tuning-Fork as a Means in Diagnosis" (THE LANCET, 1902) and "Pseudo-flexion of Uterus as a Sign of Pregnancy at First Month" (THE LANCET, 1910),

being specimens of his early and of his later work. He was the inventor of a prolapse pessary which bears his name. He became a justice of the peace for the borough of Dublin and a governor of the Lock Hospital and of the Royal Hospital for Incurables. He had also been director and governor of the Apothecaries' Hall in Dublin, and in the latter capacity had the honour of presenting an address to the late King Edward. On the outbreak of hostilities he applied for a commission in the Royal Army Medical Corps, and, not being immediately successful, accepted a combatant captaincy in his old regiment, the Durham Light Infantry, and was afterwards transferred to the battalion in which he lost his life. He will be much missed in Dublin, where his sincerity and kindliness of manner endeared him to all with whom he came in contact. He leaves a widow and two young children.

PANEL CHEMISTS AND EXEMPTION.—The list of reserved occupations issued by the Local Government Board in November last included "chemist, in the sense of a person dispensing medicines under the National Insurance Acts." Under Lord Derby's scheme this inclusion conferred upon the panel chemist a provisional exemption from being called up for military service, which could only be removed by decision of the Central Tribunal. With the passing of the Military Service Act (1916) this position no longer obtains, and the Local Tribunal, on the motion of the military representative, may now decide in the case of any particular panel chemist that it is unnecessary for him to be retained in civil employment. This view has recently been confirmed in a reply by Mr. Tennant to a question in the House of Commons. Furthermore, those panel chemists who did not attest, and who therefore come under the Military Service Act, will be automatically called up like any other eligible person unless application for exemption has been made. In order to meet this prospective depletion of the ranks of the chemist the National Health Insurance Commissioners advise concerted action between the Pharmaceutical Committee, which is already acting in the matter, and the Local Insurance Committees. It is suggested that an agreement should, where possible, be arrived at with the military representative to obtain a short postponement of any individual cases in order that all cases in the area served by each tribunal may be considered simultaneously, and suitable arrangements made to maintain a supply of drugs and appliances, not only for insured persons, which is the essential work of the National Health Insurance, but also among the civil population in general.

THE UNFIT MEDICAL STUDENT AND THE WAR.—Whether we like it or not, the medical student who has not reached his clinical study will disappear from the field after the approaching Easter, except in so far as the student is (1) a woman, (2) under the age of 19, (3) only resident in this country for the sake of study, or (4) unfit; and we shall be faced with the fact that from about Easter, 1918, for a period the length of which the boldest can hardly estimate, there will be no medical students presenting themselves for their professional examination unless they are included in the exceptions we have mentioned. The type of healthy male medical practitioner to which we have been accustomed will, therefore, lapse for a while. It is, of course, possible that the authorities may even yet rescind or modify the conditions applying to the recruiting of students in their early years, or recall them after they have shown by their example that there was no holding back on their part from danger. Still, it is prudent to face the position as it actually exists and to consider what is left to fill the ranks which have lost their usual source of supply. In so doing we may perhaps simplify matters for present purposes by leaving on one side the woman student: her future is assured, was probably assured before the present dearth of men. But although we grant, and gladly grant, her ability to fill for the emergency of the moment nearly any kind of vacant situation, the work of the female practitioner will not permanently be to understudy the male practitioner; it will occupy a field of its own. The second group of exceptions will in the fullness of time drop out as the student reaches the age of 19 years and comes automatically under the provisions of the Military Service Act (1916). The third group need hardly detain us longer. The student whose ordinary place of residence is not in the United Kingdon, and who is in this country solely for the purpose of study, will naturally, in the vast majority of cases, return to his own country when he has passed the qualifying examination which was the occasion of his residence here. We are left with the unfit student to consider, whose physical condition is such that he is ineligible for a commission in the services. Our contemporary, the *St. Bartholomew's Hospital Journal*, reminds us that it would be easy to instance many disabilities that would render military service impossible but would not debar from a highly useful medical career, and goes on to give a list of such disabilities: certain defects of vision, unilateral deafness, minor cardiac lesions, slight infantile paralysis, some degree of scoliosis or flat-foot, ankylosis of one of the larger joints, or even imperfect descent of the testis. At first sight the proposal is an unattractive one. The profession of medicine is in many of its branches an arduous one, especially so during the period of study, and we have never ceased to lay stress on the need for a supply of men equipped with healthy minds in healthy bodies to fill its ranks. The formidable list of disabilities given suggests the materials for a clinic among the students themselves. But there are not lacking inspiring examples of men who did not allow their personal disabilities to stand in the way of their work. The names of many distinguished men, dead and alive, will recur to our minds. In spite of all what can be urged against it, we believe that the proposal demands the careful consideration of those whom it chiefly concerns, and that, as our contemporary suggests, the General Medical Council might be asked to encourage young men possessing good brain power and a sound school record who have been refused a commission in the services by reason of some physical unfitness, to enter the medical schools at the present time. The disability which may seem to these young men now to be a very real hardship might in this way be turned into an opportunity for serving their country in a very definite and concrete manner.

NEED FOR RESIDENT SURGICAL OFFICERS AT HOSPITALS.—The Central Medical War Committee invites applications from gentlemen of good hospital surgical experience who are over age or otherwise disqualified for service in the Royal Army Medical Corps, who would be willing, if the necessity arose, to take resident surgical officer appointments in hospitals. This appeal is not intended to compete with the ordinary advertisements for such posts, but the Central Medical War Committee would like to have in reserve a supply of experienced surgeons who would, if necessary, be prepared to fill such appointments for a time. Applications to be sent to the secretaries, Central Medical War Committee, 429, Strand, London, W.C.

AMBULANCES FOR THE RUSSIAN RED CROSS.—The four stretcher-ambulances recently presented by Queen Alexandra at Marlborough House to the Russian Red Cross Society are the gift of the Wounded Allies Relief Committee, and embody the improvements that have been found necessary by recent experience.

THE INDIAN SOLDIERS' FUND.—The second report of the Indian Soldiers' Fund, covering the period April to November, 1915, is an interesting document, not only on account of the work recorded, but also on account of the excellent reproduction of photographs showing the activities of the Fund in all its ramifications. The Fund is under the ægis of the Order of St. John of Jerusalem in England, and provides clothing and comforts for the Indian Expeditionary Force in Egypt, East Africa, and Mesopotamia, and at the same time looks after the interests of the Indian prisoners of war in Germany. The statement of accounts shows that £151,273 have been received in donations and subscriptions, which, together with the Government capitation grant on account of Lady Hardinge Hospital and interest on bank account, makes a total of over £166,980. An urgent appeal is made by the Fund for contributions of money and clothing (specifications will be sent on application). The former should be sent to the honorary secretary, Indian Soldiers' Fund, 1, Carlton House-terrace, S.W., and the latter to 11, Somerset-street, W. Cheques and postal orders should be crossed Mercantile Bank of India, and letters containing Treasury notes should be registered.

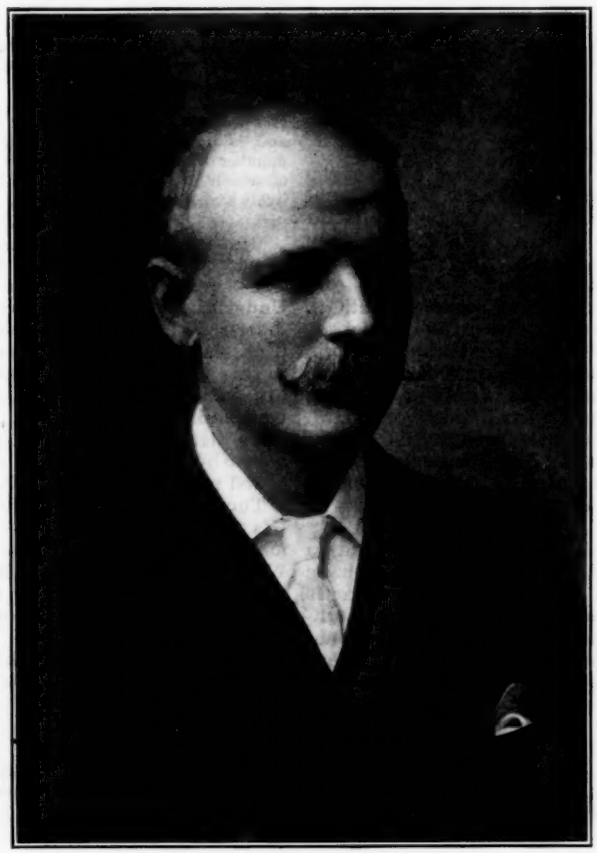
Obituary.

THEODORE THOMSON, C.M.G., M.D. LOND.,

FORMERLY ASSISTANT MEDICAL OFFICER TO THE LOCAL GOVERNMENT BOARD.

WE announced last week the death of Dr. Theodore Thomson, late assistant medical officer of the Local Government Board, who died suddenly at Oxford on March 6th, aged 57.

Theodore Thomson was the son of an Aberdeenshire clergyman, and was educated at the Universities of Aberdeen and Edinburgh, graduating in arts at the former University in 1877. In 1883 he qualified as a medical man by taking the Edinburgh double diploma, and a year later he graduated as Bachelor of Medicine at the University of London, taking the D.P.H. Camb. in 1888. In 1891 he was appointed medical inspector to the Local Government Board, having previously held the post of medical officer of health both at Aberdeen and Sheffield. In the following year he proceeded to the M.D. Lond., making State medicine his special subject. In 1894 he was called to the English bar, being a member of the Middle Temple.



THEODORE THOMSON, C.M.G.

In the 20 years during which Dr. Thomson acted as medical inspector to the Local Government Board he was entrusted with many important commissions on behalf of the Board and the Government. For example, in 1900 he was a member of a Vice-regal Committee of Enquiry into the public health of the city of Dublin. In that year and in the previous year the general health conditions of Dublin had been exposed in the clearest manner by the Special Sanitary Commissioner of THE LANCET, and the daily journals thus became alive to the appalling state of affairs revealed by the death-rate in Dublin. The condition of the schools and the housing of the poor were alike deplorable. The Irish Local Government Board bestirred itself, and to a strong Committee of Enquiry Dr. Thomson was appointed as the representative of the English Local Government Board. The report of this committee contained many recommendations in reference to housing schemes, dairy inspections, and hospital arrangements, some of which have already played their part in an improvement in the sanitary conditions of Dublin.

In 1903 and 1906 he was a British delegate to the International Sanitary Conferences at Paris and Rome respectively, acting on both occasions as plenipotentiary to sign the Sanitary Conventions. In 1904 he was an Imperial delegate to the West Indian Intercolonial Sanitary Conference of Barbados. The purpose of this conference was to arrive at some practical agreement upon matters of quarantine between the various West Indian Islands, and the result of Dr. Thomson's mission was a working convention between the communities. In 1906, at the request of the Foreign Office, he was sent on a special mission of inquiry into the sanitary defences of the Persian Gulf, mainly with a view to prevent the spread to Europe of cholera and plague *viâ* the Gulf. He recommended that no quarantine station should be established at the mouth of the Gulf, demonstrating clearly the official difficulties that would arise if this were done. In the same year he was made C.M.G. "for services in connexion with sanitary matters in the Foreign and Colonial Offices." On the retirement of Sir William Henry Power, Dr. Thomson was thought by many of his friends to be a likely selection for the post of medical officer to the Board. This appointment was not, however, made, but he became assistant medical officer to the Local Government Board in 1911 in succession to the late Dr. H. F. Parsons, a post from which he had only recently retired.

It will be seen that Theodore Thomson was a highly valued and thoroughly important public servant—the forms of different special service for which he was selected prove that he was known to possess tact, discernment, and discretion. In his methods of work he was thorough and methodical, while he was also, without appearing to be particularly busy, capable of doing a large amount of good work in a given time. It was noticeable both within and without his bureau that he was never in a hurry. His numerous official reports afford abundant evidence of his perseverance, skill, and knowledge. In illustration of these qualities special reference may be made to his reports upon measles containing advice as to the obtaining of more control over this dangerous

and common malady, and to his investigations of various outbreaks of enteric fever in Rotherham, Newport (I.W.), Worthing, Maidstone, Chichester, and Folkestone. These reports were made between 1891 and 1902. At a later date he and Dr. J. C. G. Ledingham were engaged on behalf of the Local Government Board in an inquiry into protracted and recurrent infection in enteric fever. This involved consideration of what was then known about "carriers." In 1910 a report on the subject by Dr. Ledingham, with a preface by Dr. Thomson, was published, and for many medical men this document formed their introduction to this subject.

Theodore Thomson was an agreeable and sympathetic colleague to work with, always ready to give his advice and to share his experience. As a friend he was a delightful man, whom many are regretting. He was unmarried.

RICHARD DRUMMOND MAXWELL, M.D. LOND., F.R.C.S. ENG.,

ASSISTANT OBSTETRIC PHYSICIAN TO THE LONDON HOSPITAL.

Richard Drummond Maxwell, whose death came with dramatic suddenness on March 7th, entered the London Hospital with a scholarship in October, 1892. After qualifying M.R.C.S. in July and M.B. Lond. in November, 1897, he was in succession house physician, house surgeon, and receiving-room officer. In 1907 he became a F.R.C.S. and was appointed obstetric tutor and registrar, becoming, after five years' service, assistant obstetric physician. He was also, at the time of his death, physician to Queen Charlotte's Lying-in Hospital and an examiner to the Central Midwives Board. His contributions to the literature of his special subject were numerous, and his knowledge such that he was asked by the late Dr. Herman to assist him in the preparation of his manual, "Diseases of Women" (1912).

Of Dr. Maxwell's ability there is little need to speak; his academic distinctions, the position he had already attained in his profession, the success which had already come to him, are surely sufficient testimony. Great though his professional attributes were, it is for other and rarer gifts that those who knew him will dwell upon his memory. A wide and generous sympathy for all suffering, a detestation of cant, and a passionate love of justice were mingled in his character with a natural geniality and a deep appreciation of the drama, poetry, and humour of life. The quiet courage with which he faced two serious abdominal operations was not lost on his friends. He was indeed never known to complain. Dr. Maxwell's constant interest in military matters is perhaps explained by his descent from a Scottish Border family. He had seen active service in the South African War as an officer in the Royal Army Medical Corps, while for the last 12 months he was in command of the London Hospital Section of the University Officers Training Corps. Nothing, however, compensated for the disappointment which he felt that he could not join our Expeditionary Force in France, for, like many of his countrymen, he had a strong sentimental regard for Scotland's ancient ally. Dr. Maxwell was a pure product of the London Medical School, with which he identified himself absolutely, following its varying fortunes with the closest personal interest. Such a man could not fail to be popular with both colleagues and students, and the widespread grief with which the news of his death was received bore testimony to the respect and affection in which he was held.

Dr. H. R. Andrews writes:—

In 1907 Maxwell was appointed obstetric registrar and tutor at the London Hospital. From that time until his death he worked with me almost continuously and always harmoniously. In 1912 he was appointed assistant obstetric physician. He was a loyal, cheery, and unselfish colleague, an able and popular teacher, and a skilful and successful operator. For the greater part of last year, during my illness, he bore the burden of the obstetrical and gynæcological department of the London Hospital with little assistance, working unselfishly and cheerfully, although he longed to go out to France. During the last few months he had taken up physical culture with much energy and used to swim 12 lengths of a swimming bath every evening and sprint afterwards, besides doing various exercises. He told me a few weeks ago that he had derived great benefit from this, and that his sense of bodily fitness had not been so great for some years. The end came with a shocking suddenness. On Saturday, March 4th, he wrote to the hospital saying that he would operate as usual on the following Monday. On the morning of Sunday, March 5th, he was operated on, and he died 24 hours later. His loss will be long and deeply felt at the London Hospital, and is a very real one to me. He was an enthusiastic member of the Gynæcological Visiting Society, no meeting of which could be considered to be complete without his lively and stimulating presence.

THOMAS UNDERHILL, M.D. ST. AND., J.P.

WE regret to record the death of Dr. Thomas Underhill, of West Bromwich, which occurred on March 10th from pneumonia after a few days' illness at the advanced age of 92 years. Previously to this his health had been remarkably good and his faculties well maintained. The name of Underhill is widely known in the South Staffordshire district. For several generations it has been borne by a succession of medical men who have added reputation and dignity to their calling.

Thomas Underhill was born in 1824 at Tipton. His father, Dr. Thomas Underhill, practised for many years at Great Bridge, Tipton, retiring to West Bromwich, where he died in 1853. The son's ability and energy further developed the practice, and he also settled later in West Bromwich. The same tradition was observed in the third generation. Dr. Underhill was a man of wide professional knowledge and experience. His professional judgment was sound, his opinions well balanced, his resources fertile. These attributes, combined with a cheerful readiness in following his calling to the best interests of his patients, gained him confidence and esteem among the many who recognised his services and valued his friendship. Having received his medical education at the Birmingham School of Medicine and Queen's College, he took the qualifications of M.R.C.S. and L.S.A. in 1845, the L.R.C.P. in 1859, and obtained the degree of M.D. St. And. in 1871. For a number of years he was consulting surgeon to the Guest Hospital, Dudley. In the year 1870 he was elected President of the Birmingham Branch of the British Medical Association. His inaugural address, entitled "On Hospitals and Medical Education," dwelt upon the advantages of the apprenticeship system in the training of medical students and the many defects in the hospital routine. His knowledge of the conditions of work of a large mining population was placed before the profession in various papers.

As a citizen Dr. Underhill was a warm supporter of local government and municipal institutions. On the incorporation of the town of West Bromwich in 1882 he was elected an alderman of the borough, and subsequently became the second occupant of the mayoral chair. In 1914 the freedom of the

borough was conferred upon him. He was also a justice of the peace for the county of Stafford, a member of the School Board, and associated with various philanthropic and benevolent institutions of the locality. In public as in private life he leaves an example of high-minded character, goodness of heart, and lofty principle. Dr. Underhill married Mary Anne, the daughter of Jacob Owen, of Dublin, who died some years ago, leaving him with five daughters and four sons, two of whom are in the medical profession—Dr. A. S. Underhill, of West Bromwich, and Dr. T. H. Underhill, of Herne Hill.

WILLIAM GLADSTONE CLARK, M.A. CANTAB., F.R.C.S. ENG.

BY the death of Mr. W. G. Clark, in his forty-ninth year, which took place at Bulawayo on Jan. 23rd after a short illness, Rhodesia loses one of its best-known practitioners. He was the first resident surgeon at the Memorial Hospital there, and subsequently held the post of medical officer of health and other appointments. Mr. W. G. Clark was born at Montreal, the son of Mr. James P. Clark, sometime a prominent merchant in that city. He was educated at Merchant Taylors' School and Downing College, Cambridge. Before entering on his medical studies at St. Bartholomew's Hospital, he was for several years a schoolmaster at Skipton and Cranleigh, a training which made him afterwards a conspicuously good clinical teacher. At his hospital he was in succession house surgeon, midwifery assistant, and demonstrator of physiology. Mr. Clark leaves a widow and no family.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At a meeting of Council of the Royal College of Surgeons on March 9th licences to practise dentistry were conferred upon 28 candidates who have passed the requisite examinations and complied with the by-laws. The following are the names and schools of the successful candidates:—

Reginald Naunton Bates and Vernon Wilfrid Ayres Bell-Bonnett Middlesex and Royal Dental Hospitals; Frederick David Blomfield, Middlesex and National Dental Hospitals; Vincent Clifford Carrington, Birmingham University; Cyril Lister Curle, Birmingham University and Guy's Hospital; Howard Curtis, Guy's Hospital; Herbert Gwyn Davies, Middlesex and Royal Dental Hospitals; Walter Edmund Drummond, Bristol University; Victor William Russell Forbes, Charing Cross and Royal Dental Hospitals; Reginald Fyson, Robert James Wilson Hogue, and William Kenneth Talbot Hope, Middlesex and Royal Dental Hospitals; Edward Almond Jennings, London Hospital; Alfred Kenneth Ince Jones and Wright Lambert, Middlesex and Royal Dental Hospitals; Edgar Clarence Lewis, Guy's and Royal Dental Hospitals; Francis Vincent Maguire and Percy Millican, Middlesex and Royal Dental Hospitals; Llewellyn Arwyn Morris, Stanley Gordon Smith, and Cecil Stanley Southwell, Guy's Hospital; John Speak, Middlesex and Royal Dental Hospitals; Samuel Ogden Stewart, Liverpool University; Thomas Charles Stretton, Middlesex and Royal Dental Hospitals; Robert Augustus Waters, Bristol University; Maurice Gustave Watson, Guy's Hospital; Percy Williams, Liverpool University; and James Thomson Wood, Middlesex and Royal Dental Hospitals.

The diploma of M.R.C.S. was conferred upon the following candidate who has now complied with the by-laws for the membership:—

Kesava Narayana Rau, Madras University and University College Hospital.

An ordinary meeting of the Council was held on March 9th, Sir W. Watson Cheyne, the President, being in the chair. It was resolved to issue diplomas of the Licence in Dental Surgery to 28 successful candidates. It was resolved, on the recommendation of the Board of Examiners in Dental Surgery, to approve of the principle of modifying the curriculum in reference to the general subjects required at the examination for dental students. A report was read from Mr. C. H. Golding-Bird on the proceedings of the Central Midwives Board during the past year. The thanks of the Council were given to Mr. Golding-Bird for his report, and it was ordered to be entered on the minutes. Sir Henry Morris was re-elected the representative of the College on the General Medical Council. The President reported that he had chosen Mr. Charters J. Symonds as Bradshaw lecturer for the ensuing collegiate year.

UNIVERSITY OF BRISTOL.—At examinations held recently the following candidates passed:—

Second Examination for the Degrees of M.B., Ch.B.—Bernard Archibald Astley-Weston, Elizabeth Casson, and Reginald Frank White.

Third Examination for the Diploma in Dental Surgery.—Roy Lugarde O'Sullivan.

ROYAL SANITARY INSTITUTE.—Professor J. Martin Beattie is to open a discussion on Tuberculosis of Children and Milk-supply at the Physics Theatre, University of Liverpool, on Friday, March 31st, at 3.30 P.M. The medical officers of health for Liverpool, Bootle, Wallasey, St. Helens, and Cheshire are expected to take part.

CENTENARIANS.—The *Times* announces the death, at Cobham, of Mr. Henry Snooks, who would have attained his 105th birthday had he lived till March 22nd. He was a native of Gillingham, Dorset.—Mrs. Maria Long died on March 13th at the age of 104. She was the mother of Captain R. W. Long, R.A.M.C.

THE LATE DEPUTY SURGEON-GENERAL J. LANDALE, A.M.S. (RETIRED).—Deputy Surgeon-General James Landale died at his residence in Cheltenham on March 7th in his eightieth year. The deceased officer graduated M.D. Edin. in 1856, and in the same year obtained the L.R.C.S. Edin. He was in the army medical department for 33 years, and served through the Indian Mutiny, being attached to the 92nd Foot. He had resided for several years in Cheltenham, where he was highly esteemed.

SEAMEN'S HOSPITAL SOCIETY (DREADNOUGHT), GREENWICH.—At the annual court held on March 14th the chair was taken by Major-General F. L. Lessard, C.B., of the Canadian Expeditiomary Force, whose efforts on behalf of a special appeal for the hospital in Canada had resulted in the collection of £4000 in Toronto alone. Lord Devonport spoke of the success which had attended the effort to provide isolation wards, an X ray department, lifts, and rest and recreation rooms for the nursing staff. There now seemed good prospect of raising the total sum required of £50,000. The work would not be commenced while the present high prices of materials continued to rule. The Rt. Hon. Andrew Fisher (High Commissioner for Australia) spoke in terms of high praise of the activities of this international institution of mercy. Dr. Frederick Taylor, President of the Royal College of Physicians of London, referred gratefully to the efforts made by the medical, surgical, and nursing staffs to maintain the work of the hospital at a high level during the absence on combatant service of a number of its members, and at a time when the institution contained its full complement of sufferers.

MANCHESTER AND ITS HOSPITALS.—A Manchester correspondent writes:—"Since the outbreak of the war Manchester has become the greatest hospital centre outside London. In 1915 the military patients nursed and treated in our hospitals numbered 10,976, divided as follows: Royal Infirmary, 1715; Royal Eye Hospital, 3373; Salford Royal Hospital, 1067; Ancoats Hospital, 394; Ear Hospital, 928; Skin Hospital, 190; Dental Hospital, 3306. At the annual meeting of the trustees of the Royal Infirmary, which was held on Feb. 11th, it was stated that the number of beds provided for military patients was 308, and the board were prepared to provide 42 more so as to bring the total up to 350. There was an average of 200 beds occupied by the military patients, in addition to the heavy demands for civilians. With few exceptions, all the honorary staff have been engaged in some form of medical war service in addition to their ordinary work. Dr. A. Ramsbottom has been 'somewhere in France' since 1914, two others went abroad with the 33rd Base Hospital, which was mobilised shortly, and its medical staff was drawn almost entirely from Manchester. The distinction of the Royal Red Cross of the First Class has been conferred upon Miss Sparshott, the lady-superintendent of the infirmary and principal matron of the 2nd Western General Hospital. Since the institution of Hospital Sunday in 1870, 46 years

ago, £210,000 have been raised towards the support of the hospitals and medical charities of Manchester and Salford. In 1874 £6250 were raised, while in 1913 only half the amount was collected."

UNIVERSITY OF OXFORD: RADCLIFFE TRAVELLING FELLOWSHIP.—Mr. George E. Beaumont, B.A., University College, has been elected to a Travelling Fellowship on the Foundation of Dr. John Radcliffe.

THE ANGLO-RUSSIAN HOSPITAL.—In consequence of the absence of Colonel A. E. Garrod, A.M.S., at Malta, Dr. T. J. Horder has been unable to join the staff of the Anglo-Russian Hospital in Petrograd, and is at present acting as medical adviser in London to the hospital.

THE annual meeting of the Society for the Study of Inebriety will be held in the rooms of the Medical Society of London, 11, Chandos-street, W., on Tuesday, April 11th, at 4 P.M. The Rev. J. C. Pringle, secretary of the Charity Organisation Society, will open a discussion on "Alcoholism and Social Service." Each member and associate is at liberty to introduce a visitor.

DEATH OF MR. A. F. WILSON.—Andrew Fairlie Wilson, L.R.F.P.S. Glasg., the medical officer of health for the borough of Stirling, died at his residence on Feb. 26th, aged 64. A native of Stirling he qualified in 1882, and after spending three years in Orkney returned to Stirling and engaged upon medical practice in 1885. He was recently appointed tuberculosis officer and medical officer to the Insurance Committee. Mr. Wilson was unmarried, but his love for children, especially those of the poorer quarters of the borough, was great, and as one of his friends writes: "He constituted himself the champion of the little ones of the dark places."

CANCER HOSPITAL, BROMPTON, S.W.—The annual general meeting of the governors of this hospital was held on March 13th. Lord Northbrook, chairman of the governors, presiding. The chairman, in moving the adoption of the report, said that although the past year had been a trying one owing to the depletion of the staff and other circumstances incident on the war, the usefulness of the hospital was in no way suffering. He alluded to the loss sustained by the resignation, owing to ill-health, of Mr. F. B. Jessett, consulting surgeon, who had been connected with the hospital for 31 years, during 25 years of which he had filled the office of surgeon. At the outbreak of war their well-equipped electrical and X ray departments and 50 beds had been accepted by the War Office, and during the past year 57 soldiers had been admitted to the wards, and 135 military patients had received treatment in the electrical and radio-therapeutic department. Colonel Webber, in seconding, said the total expenditure for the year was £19,749, against £18,855 the year before. Thrift had been observed, and the cost per head had been decreased.

Parliamentary Intelligence.

HOUSE OF COMMONS.

WEDNESDAY, MARCH 8TH.

Irish Medical Students at Edinburgh.

Sir THOMAS ESMONDE asked the Under Secretary for War whether his attention had been called to the case of Mr. John T. Dur, an Irish medical student at Edinburgh, who had been ordered to report himself for enlistment; whether Mr. Dur and others similarly circumstanced in Great Britain were bound to enlist; and what steps had been taken in Mr. Dur's case.—Mr. TENNANT replied: If Mr. Dur is unattested and is only temporarily resident in the United Kingdom he would be excepted from the operation of the Military Service Act.

Middlesex County Asylum.

Mr. KING asked whether all the lunatic inmates were being removed from the Middlesex County Asylum at Napsbury, and, if so, for what reason; were they being sent to a long distance from their relatives; was it intended to increase the number of certifiable soldiers at present in a block of this asylum, or to place uncertifiable soldiers in this position; or would accommodation be offered in this asylum for the wounded.—Mr. BRACE wrote in reply: The whole of the Middlesex County Asylum at Napsbury is being handed over to the War Office for use as a military hospital, and the patients are being distributed over other asylums as near as possible to Middlesex. The asylum is to be used by the War Office for sick and wounded soldiers, but it is still intended to receive there a certain number of soldiers suffering from mental and nervous affections of the same type as those now under treatment in the detached part of the institution already adapted as a war hospital.

THURSDAY, MARCH 9TH.

Fees for Examining Recruits.

Mr. SNOWDEN asked the Under Secretary for War whether army medical examiners of recruits were paid a fee only on cases which were passed; and whether this could be accepted as the explanation of the fact that recently men had been passed as fit for military service who had an artificial leg, men who were so mentally deficient that they were unable to understand or answer any question put to them by the recruiting officer, and men who had never done any work for years on account of daily attacks of epilepsy, or what other reason there might be for passing such persons into the army.

Sir FREDERICK CAWLEY also asked the right honourable gentleman whether recruiting medical officers were paid only for recruits whom they passed as sound; and whether officers of the Royal Army Medical Corps received special payment for each recruit passed.—Mr. TENNANT replied: I will answer both questions together. I am grateful to the honourable Member for Blackburn and also to the honourable baronet for giving me the opportunity for contradicting categorically the statement that recruiting medical officers are paid only for recruits whom they pass as sound. It is the examination which is paid for and the pecuniary result to the examining medical officer is the same whether he accepts or rejects a recruit. I have stated this upon several occasions. I should add that a medical man holding a commission receives no fees for the examination of recruits. I cannot accept the latter part of the question of the Member for Blackburn (Mr. Snowden) as being anything else than an incorrect misrepresentation of the results of the work of the examining medical officers. I think that instead of being held up to obloquy they deserve support and recognition for their patriotic work.

Soldiers and Tuberculosis.

Mr. PARTINGTON asked the Under Secretary of State for War whether no pensions were granted to soldiers who had contracted tuberculosis on active service.—Mr. TENNANT answered: No, sir; any statement to that effect is altogether incorrect. I find that of 87 cases of men discharged in January, 1916, for tuberculosis contracted in France, 70 were granted pensions at war rates, nine have been granted final pensions, and eight cases are still under consideration.

Mr. BOOTH: Have not hundreds of these cases now come back on to the Insurance Act?—Mr. TENNANT: No; I am not aware of anything of the kind. If the month I have quoted is an average one, then out of 87 cases 79 have received pensions.

Abdominal Operations at the Front.

Mr. R. MCNEILL asked the Under Secretary of State for War, whether, at the outbreak of war, an order was in force forbidding medical officers of the Royal Army Medical Corps to operate in abdominal cases; whether, notwithstanding this order, an eminent surgeon operated in abdominal cases in Antwerp in the autumn of 1914 with satisfactory results; whether the order nevertheless remained in force until after September, 1915; whether the usefulness of operation in abdominal cases in saving life had now been established, provided the operation could be performed with a minimum loss of time; and whether steps were being taken to inaugurate a complete system of operating field hospitals as close as possible to the fighting zone.—Mr. TENNANT answered: I cannot find that the order referred to is anything else than a figment of some fertile imagination. The arrangements in France have the full approval of the consulting surgeons and of others most competent to judge. I have quite recently received a report from Sir Frederick Treves in which he states that in many cases a man in need of a grave operation has found himself on the operating table within three or four hours of his being shot, and that he was informed of cases in which operations upon the skull and the abdomen had been carried out within two and a half hours of the receipt of the wound; and he adds that such prompt attention could not be obtained by a wounded civilian in any rural district in England. If he so desires, I will show my honourable friend the whole of the report from which I have read this extract.

Mr. MCNEILL: Does the right honourable gentleman know that the facts spoken to by Sir Frederick Treves are extremely exceptional, and will he be prepared to say that there is an organisation whereby facilities are provided for operations to be carried out at the front?—Mr. TENNANT: Such a sweeping statement might not be permissible or proper, but there is an organisation of clearing stations so near the front

that they are constantly under shell fire, in which these operations can and do take place at all hours of the day and night.

The Board of Control.

Replying to Mr. KING, Mr. H. SAMUEL (Home Secretary) said: The Lunacy Commissioners have been merged in the Board of Control. The work of the Board in carrying out the Mental Deficiency Act has been seriously checked by the restriction of capital expenditure caused by the war. They have been unable for this reason to press local authorities to provide new institutions for defectives, but a good deal of useful work has been done in other directions, such as providing for the supervision of defectives at their homes. On the other hand, the work of the Commissioners in connexion with lunacy has been increased rather than diminished by the handing over of lunatic asylums for use as war hospitals. The concentration of patients into a smaller number of asylums has not diminished their numbers, has demanded even closer supervision than formerly, and has involved difficult administrative and financial arrangements. Two of the Commissioners have, at the request of the War Office, undertaken the continuous supervision of the war hospitals scheme, and have thus to a large extent been withdrawn from their ordinary functions. Another Commissioner and one of the inspectors have been absent on military duty since the beginning of the war, and more than half the clerical staff have joined the forces. The expenditure of the Board has been reduced in many directions, and the estimates for the coming year will show a large reduction.

TUESDAY, MARCH 14TH.

V.A.D. Hospitals.

Sir CLEMENT KINLOCH-COOKE asked the Under Secretary for War whether he had received any complaints from the V.A.D. hospitals as to the strict nature of the regulations governing the movements of convalescent wounded; and whether he would consider the possibility of introducing a little more liberty in this respect regarding the inmates in these hospitals.—Mr. TENNANT replied: Complaints have been received that the discipline in these hospitals was too lax and also in smaller numbers that the discipline was too severe. New instructions were issued and the complaints have ceased. The desirability of giving reasonable liberty to patients is fully realised and the desirability of patients fully recovering their health is no less recognised.

Medical Work in the Army.

Mr. TENNANT, in the course of his speech on Army Estimates, said that the medical standard of recruits had not been reduced. Medical boards had been established in each military area, and by this means it was thought that the medical examination had been improved. Men who had been previously accepted for service by local practitioners had been in certain cases rejected by the medical boards. A process of grading recruits into categories had also been adopted. With regard to disablement pensions, the Government had decided that these should be granted to men whose disease had not been caused, but had been aggravated by service, but the limit of pensions would in this case be only four-fifths of the rates prevailing for men who had been wounded in the service.

The Health of the Army.

I must say, proceeded the right honourable gentleman, a word for the medical service. Since I last spoke it has been continued and almost perfected. The incidence of disease in France is low. There is an entire absence of any epidemic. We owe our thanks to the many medical and scientific men for their energy and action in this matter, and particularly in the prevention of disease. We have received valuable aid from the Sanitary Committee, which has done splendid work, especially in Gallipoli, where they had a difficult task in counteracting tropical diseases. In that sphere the outbreak of dysentery and diarrhœa caused us great anxiety. Fortunately we have no anxiety now in relation to the health of the troops, either at Salonika or in Egypt. At home large convalescent hospitals have been established, and in the military hospitals here men are being replaced by women. Fourteen hundred women have already asked for general service. For this we have to thank the Red Cross Society. Between 5000 and 6000 women who have been organised in voluntary aid detachments are now doing regular nursing work in hospital. That is a wonderful fact. In order to obtain medical officers under conditions least harmful to the needs of the civil population and the great civil institutions we have established a representative body of medical men in conjunction with the National Health Commissioners and the Local Government Board. It has already done very valuable work. The members of the medical profession generally have come forward in the most admirable manner to meet the needs of the State. We have taken highly successful measures against the gas attacks of the enemy, we have established new medical boards for the examination of recruits, and finally the National Health Commissioners have taken up the question of the early treatment of tubercular cases removed from the army. I think it is fair to claim on behalf of the medical service that they have done a very great work.

The Opinion of Sir F. Treves.

I should like to quote (said Mr. Tennant) the opinion of Sir Frederick Treves, who went through the South African War and the Russo-Japanese War, and who also, I would remind the House, was at one time a critic of the War Office. Sir Frederick Treves said: "Those who are familiar with the medical dispositions in the South African War will find in this campaign an advance in the medical services so great and so wide extending as to amount to an actual revolution. Not only has the sick and wounded soldier never been so well cared for in any campaign as in the present, but it is difficult to suggest in what way his welfare could be further promoted." Sir Frederick Treves takes a couple of illustrations. He says: "We should note in the first instance such an advanced dressing station as that at Les Brebis. The place is a mining village well within range of the enemy's fire; indeed, some 20 shells had fallen into the area on the morning of our visit. The hospital is a building which was used by the miners as an entertainment hall. This hall makes an excellent ward provided with every necessary detail. Attached is a small, carefully equipped operation room, where operations of an urgent nature—such as the arrest of hæmorrhage—could be carried out. Here also wounds may be cleansed and redressed, fractures more comfortably adjusted, and injections of anti-tetanic serum given. Close at hand were two dug outs into which patients could be taken if the shelling threatened the building. The whole station was simple, efficient, and exactly equipped for its limited purpose. There was nothing lacking, and yet nothing superfluous, and the feature of extreme mobility was kept prominently in mind."

Clearing Stations.

Reference is made to clearing stations, and one at Bailleul is alluded to. "From a surgical point of view these clearing stations represent the most important items in the general scheme for the treatment of the sick and wounded. They are as near the front as they can be placed, they are readily accessible from the advanced dressing stations, while they are in direct touch with the base either by a line of rail or by a good main road. The tents are well warmed by stoves and well lit by electric light, while the operating-theatre is as well found as any in a civil hospital of its size. The huts at Remy and the wards at Bailleul could compare with the wards of any good civil hospital in England. To these clearing stations wounded men can be brought in a few hours, and it is needless to point out that in the severest gunshot wounds prompt attention is the main factor in the saving of life and limb. In many cases a man in need of a grave operation has found himself on the operating-table within three or four hours of his being shot. We were told of instances in which operations upon the skull and the abdomen had been carried out within two and a half hours of the receipt of the wound. Such prompt attention could not be obtained by a wounded civilian in any rural district in England. The patient not only finds himself in an operating theatre, equipped with the best and most recent appliances, but in the case of every one of these hospitals he finds himself in the hands of an operating surgeon of the first order. The value of such service cannot be exaggerated. At the same time the patient has the advantage of the regular and frequent visits of a consulting surgeon of European reputation. Moreover, the nursing in these stations is of the highest type, being carried out by the army nursing sisters. It must be remembered that a great number (and often the greater number) of the patients arrive at night and that, over and over again, operations are carried out the whole night through. It must be noted also that vast shell wounds require constant and elaborate dressing that absorbs much time and can only be carried out by the surgeon himself. At Lapugnoy, with its 376 beds, no less than 2000 casualties were dealt with in one day. We found that at the clearing station at Bailleul the vast number of 61,000 sick and wounded had passed through the hospital since it was opened, while the number of major operations reached to over 1000. In the hospitals we visited we found on all sides evidence that the sick and wounded soldier has the advantages of the latest advances in surgical science, the most modern equipment, and the most recent developments in bacteriological work."

WEDNESDAY, MARCH 15TH.

The War and the Medical Services.

During the course of the debate on Army Estimates Mr. R. MCNEILL criticised the organisation of the Royal Army Medical Corps at the front. He stated that at Loos the medical staff immediately available was not nearly large enough to deal expeditiously with the wounded, and the

organisation had not been sufficiently flexible to bring in promptly the services of the medical officers of divisions which had not been engaged. This was due to a too rigid adherence to red tape. The War Office had failed to make the best use of the medical talent at its disposal, and in his view a small impartial committee should be appointed to make investigations into the organisation and report to the Government.

Mr. LONG (President of the Local Government Board), speaking later in the debate, said that the Government, both at home and in India, was doing everything it could for the wounded in Mesopotamia. It had been decided some weeks ago to conduct an inquiry into the medical arrangements there, and to take all necessary steps to remedy deficiencies. The War Office had supplied the Indian Government with two Indian general hospitals with complete personnel, and the personnel of two more Indian hospitals, and also a British stationary hospital of 400 beds and a British general hospital with 1000 beds, together with 100 doctors and 100 orderlies. He hoped that that announcement would satisfy the House that the Government was doing its utmost to see that every possible alleviation was being provided for the sufferings of those who were unfortunately wounded.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

CLUCKIE, N. G., M.D. Glasg., has been appointed Consulting Ophthalmic Surgeon to the Victoria Eye Infirmary, Paisley.

GILCHRIST, J., has been appointed Ophthalmic Surgeon to the Victoria Eye Infirmary, Paisley.

LYSTER, R. A., M.D. Birm., D.P.H., has been appointed Lecturer in Forensic Medicine at St. Bartholomew's Hospital.

SMITH, A. WOOD, M.D. Glasg., has been appointed Medical Superintendent of the Royal Hospital for Sick Children, Yorkhill, Glasgow.

THACKRAY, ELIZABETH, M.B., B.S. Lond., has been appointed Deputy Medical Officer to the St. Pancras Board of Guardians.

WADESON, E. A., M.B., B.C. Cantab., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Sedbergh District of the county of Yorks, West Riding.

WATSON, S. J., M.B., B.S.R.U.I., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Abercrave District of the county of Brecon.

WISE, A. T. TUCKER, M.D., M.R.C.S., L.R.C.P., Swiss Diploma, has been appointed Medical Superintendent to the Devon County Sanatorium at Hawkmoor, near Bovey Tracey.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).
When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor.

BELGRAVE HOSPITAL FOR CHILDREN, Clapham-road, S.W.—Resident Medical Officer for six months. Salary at rate of £100 per annum, with board, residence, and washing.

BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church-street.—Resident Surgeon.

BOLTON INFIRMARY AND DISPENSARY.—Female Second House Surgeon and Female Third House Surgeon. Salary £200 and £180 per annum respectively, with apartments, board, and attendance.

BOOTLE BOROUGH HOSPITAL.—Junior House Surgeon. Salary £170 per annum, with board, lodging, and laundry.

BRISTOL GENERAL HOSPITAL.—Casualty House Surgeon for six months or three months. Salary at rate of £175 per annum, with board, residence, &c.

BRISTOL ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN.—Female House Surgeon and House Physician. Salary £150 per annum, with board, rooms, attendance, and laundry.

BRISTOL ROYAL INFIRMARY.—House Physicians and House Surgeons. Salary at rate of £120 per annum, with board, apartments, and laundry.

BURNLEY, VICTORIA HOSPITAL.—Female House Surgeon. Salary £160 per annum, with residence, board, and washing.

CAMBRIDGESHIRE ASYLUM, Fulbourn, near Cambridge.—Junior Assistant Medical Officer, unmarried. Salary £200 per annum, with board, lodging, washing, and attendance.

CARDIFF, KING EDWARD VII.'s HOSPITAL.—Two House Surgeons for six months. Salary at rate of £140 per annum each, with board, residence, and laundry.

CHARING CROSS HOSPITAL.—Medical Registrar.

DUDLEY, GUEST HOSPITAL.—Senior Resident Medical Officer. Salary £150 per annum, with residence, board, and washing.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—House Surgeon. Salary at rate of £160 per annum, with board, residence, and washing. Also Clinical Assistants in Out-patient Departments.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—House Surgeon. Salary £150 per annum, with board, residence, and laundry.

HUDDERSFIELD ROYAL INFIRMARY.—Junior House Surgeon. Salary £100 per annum, with board, residence, and laundry.

KING'S LYNN, 2/2ND SOUTH MIDLAND MOUNTED BRIGADE FIELD AMBULANCE.—Medical Officers.

LEEDS PUBLIC DISPENSARY.—Female Resident Medical Officer. Salary £130 per annum, with board, residence, and laundry.

LIVERPOOL, DAVID LEWIS NORTHERN HOSPITAL.—One House Physician and two House Surgeons for six months. Salary at rate of £150 per annum, with board, &c.

LIVERPOOL INFIRMARY FOR CHILDREN, Myrtle-street.—Resident House Physician and Resident House Surgeon for six months. Salary £30 each, with board and lodging.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury, near Manchester.—Two Female Resident Medical Officers for six months. Salary at rate of £100 per annum.

MANCHESTER, HULME DISPENSARY, Dale-street, Stretford-road.—House Surgeon. Salary £250 per annum, with apartments, attendance, coal, and gas.

NORFOLK, HEMPTON, FAKENHAM, 2/1ST SOUTH MIDLAND MOUNTED BRIGADE.—Three Medical Officers.

NOTTINGHAM CITY ASYLUM.—Senior Assistant Medical Officer, unmarried. Salary £300 per annum, with apartments, board, and laundry.

PUTNEY HOSPITAL, Putney Common, S.W.—Resident Medical Officer. Salary £150 per annum, with rooms, board, and laundry.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—Temporary Medical Officer.

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Out-patient Surgical Officer. Salary at rate of £50 per annum.

SALISBURY GENERAL INFIRMARY.—House Surgeon and Assistant House Surgeon. Salary £150 and £100 per annum respectively, with apartments, board, lodging, and washing.

SHEFFIELD ROYAL INFIRMARY.—House Surgeon. Salary £100 per annum, with board and residence.

SOUTH LONDON HOSPITAL FOR WOMEN, 88–90, Newington-causeway, S.E.—Female Assistant Physician and Assistant Surgeon.

TOTTENHAM DISTRICT COUNCIL.—Medical Officer. Salary at rate of 1½ guineas per session.

UNIVERSITY OF LONDON.—External Examiners.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Surgeon. Salary by arrangement, with board and lodging.

WALLSEND BOROUGH EDUCATION COMMITTEE.—Female Temporary School Medical Officer. Salary at rate of £300 per annum.

WIGAN, ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Junior House Surgeon. Salary £150 per annum, with board, apartments, and washing.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—Senior Student to act as Assistant to House Surgeons. Board, rooms, and laundry, and honorarium will be given.

WOMEN'S HOSPITAL FOR CHILDREN, 688, Harrow-road, W.—Anæsthetist. Salary £10. L.C.C. fees £75.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Billingborough, in the county of Lincoln; and at Lydbrook, in the county of Gloucester.

Births, Marriages, and Deaths.

BIRTHS.

BEATTIE.—On March 9th, at Ellison-place, Newcastle-on-Tyne, to Dr. and Mrs. Beattie, a daughter.

CRAIG.—On March 12th, at Albany-street, Regent's Park, N.W., to Dr. and Mrs. James C. Craig, a daughter.

FRAZER.—On March 8th, at Colville-square, W., the wife of Professor J. E. Frazer, F.R.C.S. Eng., of a son.

HOLROYDE.—On March 12th, at Selby Lodge, Consett, the wife of Lieutenant G. Holroyde, R.A.M.C., of a daughter.

MILNE.—On March 10th, the wife of Robert Milne, M.D., M.S., F.R.C.S., 21, Park-crescent, Portland-place, W., of a son.

SEQUEIRA.—On March 5th, at Woodburn, South Queensferry, the wife of Fleet-Surgeon W. S. H. Sequeira, R.N., of a daughter.

WILLAN.—On March 14th, at Claremont-place, Newcastle-on-Tyne, the wife of Staff-Surgeon R. J. Willan, M.V.O., F.R.C.S., R.N.V.R., of a son.

MARRIAGES.

FENTON—FERGUSON.—On March 7th, at St. Matthias, Earl's Court-square, W. J. Fenton, M.D. Cantab., F.R.C.P. Lond., to L. O. C. Ferguson, only daughter of Major H. and Mrs. Ferguson.

HARTRIDGE—WILSON.—On March 7th, at the Parish Church, Kegworth, Lieutenant Hamilton Hartridge, R.N.V.R., M.A., M.B. Cantab., to Kathleen, the only daughter of Hugo and Annie Wilson, of Springwell, Kegworth, Leicestershire.

WALKER—MAY.—On March 2nd, at St. James's Church, Paddington, Dr. James Frederick Walker, to Alice Cecil, only child of the late W. S. H. May, of The Elms, Kendrick-road, Reading.

DEATHS.

BARNES.—On March 6th, at Merstham, Surrey, Arthur Richard Barnes, M.D. Edin., aged 65 years.

BARNICOT.—On March 10th, at Queen-street, Hitchin, Joseph Barnicot, M.D. Cantab., from typhoid fever.

BENNETT.—On March 5th, at "Hillside," Upper Lydbrook, Ross-on-Wye, from pneumonia, Edward Bennett, L.R.C.P. & S. Edin.

BIRD.—On March 10th, at Sutton Oak, Charles Thomas Grant Bird, M.A., M.B. Cantab., Ch.B., aged 32 years.

CAMPBELL.—On March 10th, at Queen's-road, Southport, Colin George Campbell, M.R.C.S., &c., aged 63 years.

HAYES.—On March 6th, at Highfield House, Basingstoke, Hawkesley Roche Hayes, L.R.C.P. Lond., J.P., aged 80 years.

LANDALE.—On March 8th, at Dunholme, Cheltenham, Deputy Surgeon-General James Landale, M.D. Edin., late R.A.M.C., in his 80th year.

RIDGE.—At "The Platanes," Denmark Hill, Percy Brewster Ridge, M.B., B.S., Captain, R.A.M.C. (T.), in his 34th year.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

SUGAR, WAR, AND WEALTH.

IT is curious that sugar, war, and wealth have nearly always had a close connexion. In the earliest days sugar was dispensed as a drug and in very small quantities, later in ounces, and then by the pound. About the year 1459 Margaret Paston, writing to her husband, who was a gentleman and landowner in Norfolk, begs that he will vouchsafe to buy her a pound of sugar. By the time of Henry VIII. (1509) it had become a little more known in England but was a luxury. As a luxury and a measure of the growing wealth of the country it was always considered. "On the 8th March, 1824, one of His Majesty's Ministers in his place in Parliament exulted [so the old record runs] that the consumption of sugar had increased 40 per cent. since 1818 which was an evidence of the increasing prosperity of the country." A hundred years ago, in the year 1816, Great Britain retained for home consumption (that is, the difference between import and re-export), according to contemporary statistics, 2,096,930 cwt. (quoted later by McCulloch as 2,529,931 cwt.), the average price per cwt. being 48*s.* 6*d.*, with a duty of 30*s.* per cwt. The main cause of the extension of production of beetroot sugar on the continent was the blockade of continental ports and the exclusion of cane sugar, as in 1800 Napoleon greatly encouraged the French chemists in their attempts to perfect the manufacture of beet sugar, and later by a celebrated decree of 1812, and the consequences may be seen by the fact that in the year 1828 France produced only about 4,000,000 kilogrammes from beet, but ten years later made from that source 39,199,408 kilogrammes, and the production increased in the year 1850 to 75,151,128 kilogrammes, a part of the later increase in beet sugar being due to the emancipation of the slaves in the French colonies in 1848. By 1870 the *Journal des Fabricants de Sucre* estimated that the production of sugar from beet in Europe amounted to nearly 1,000,000 tons, and in the same year a German authority estimated that there were 1,507 manufactories of sugar in Europe, of which France had 423, Germany 310, Austria-Hungary 228, and Great Britain 1 only. Ten years ago the consumption of sugar in France had risen to an average of 558,000,000 kilogrammes, or 14·2 kilogrammes per inhabitant (about 31 lb. per person). This is a rise since the year 1880, when Mulhall estimated that the consumption in France and Germany was 21 lb. per inhabitant. It was then 68 lb. per inhabitant in Great Britain and 43 lb. per inhabitant in the United States, but in Russia and Italy 7 lb. per inhabitant only. As we import over 1,500,000 tons now the consumption per head in this country must be nearer 84 lb. per head. The rise in value will be seen by stating that in the year 1886 the value of the imports into this country was about £16,000,000, and in 1912 about £25,000,000. From the year 1883 to 1889 the importation of refined sugar into this country from Germany increased sevenfold. Our refineries could not continue under the system of foreign state bounties and the control of the internal and export markets by foreign Kartels or trusts for regulating prices, but although artificial prices might be arranged thus for trade advantages, the consumption must necessarily be subjected to the law of supply and demand of the public, and this in its turn to wealth and war.

THE HEALTH OF TRINIDAD AND TOBAGO.

IN his annual report on Trinidad and Tobago for the year ended March 31st, 1915, the Surgeon-General of Trinidad, Dr. H. L. Clare, reports that tuberculosis pursues its course of havoc in the islands. In the absence of official notification the actual incidence of the disease is not accurately known, but the prevalence is indicated by the death-rate per 1000 living of 1·58 in the whole colony and 3·54 in Port of Spain. A voluntary association continues its beneficent work in prevention and treatment, employing two trained nurses to visit and educate the infectious cases. The evils of bad housing accommodation are very apparent, and the surgeon-general laments the lack of an institution to demonstrate to the people the advantages and curative influence of light, fresh air, and scrupulous cleanliness. An intercolonial conference had unfortunately to be given up on account of the war, but Dr. Clare hopes nevertheless that the Government may give prominence to the urgent need for notification and the means of isolation of dangerous cases.

A report, prepared by Mr. S. W. Knaggs, C.M.G., Colonial Secretary, on the latest Blue-book of Trinidad and Tobago, has also just appeared. It gives the present estimated population of the colony as 359,527, in the proportion of 187,926 males and 171,601 females. During the year 1914–15 there were 11,855 births and 8327 deaths, giving a birth-rate of 33·4 and a death-rate of 23·41 per 1000 of the population. 1281 marriages were registered during the year. The immigrants introduced from India numbered only 443, the usual recruiting having been suspended for want of transport facilities owing to the war. The most important hospital is the Colonial at Port of Spain, with 320 beds. The number of patients admitted at this institution during the year 1914–15 was 4464, the number discharged 3758, and the daily average in hospital 255. The number of deaths was 669. Of those discharged 1878 were cured, 1585 relieved, and 295 not improved. At the San Fernando Hospital, which has 120 beds, 3026 persons were admitted and 2709 were discharged, the daily average in hospital being 108. District hospitals are also maintained by the Government at Tobago, Arima, St. Joseph, Tacarigua, Couva, Princes Town, and Cedros, with an aggregate accommodation of 246 beds, while there are small temporary hospitals at Chaguanas, Sangra Grande, Mayara, and Toco. There are two hospitals devoted entirely to the treatment of persons suffering from yaws—one in Trinidad, and the other in Tobago. The former has accommodation for 200 patients and the latter for 160. The lunatic asylum in Port of Spain contained on March 31st, 1915, 680 inmates (417 males and 263 females), a decrease of 9 as compared with March 31st, 1914. The number of admissions was 175, the number of discharged 74, and the number of deaths 110. Of those discharged, 48 were cured, 16 relieved, and 10 not improved. In the Leper Asylum, situated about two miles west of Port of Spain, there were at the close of the year 318 inmates (236 males and 82 females), an increase of 18 as compared with 1913–14. The number of admissions was 110, discharges 45, and deaths 17. Assisted by Mr. Rockefeller, the National Health Commission has during the past year waged a vigorous campaign in the colony against ankylostomiasis with very encouraging results. The disease is known to be very prevalent, many of the newly imported immigrants from India being found to be infected with it, and it is certainly the cause of many cases of illness and incapacity among the labouring population. The people, however, appear to be readily willing to avail themselves of the advice and help of the commission, and it is hoped that with this and the provision on the estates and elsewhere of proper latrine accommodation the disease will be kept under proper control. An endeavour is being made to arrange for the treatment for it of the emigrants from India to the colony before embarkation and also during the voyage.

THE YOUNG OFFENDER IN WAR TIME.

THE State Children's Association has sent us a letter stating that information gathered from many districts of the United Kingdom shows that there is a disquieting increase in juvenile delinquency. The children's offences are usually house-breaking, raiding of shops and stalls, stone-throwing, the use of air-guns or toy pistols, and wilful damage and destruction. An outcry, they say, has been raised against what is termed the growing depravity of children, and severer and more repressive punishments are demanded, but it is important to remember that the children are not alone to blame. Being the most impressionable and imitative material, they reflect immediately in their conduct and their play every phase of national emotion or local feeling. In thousands of homes the father is absent; in many the mother is employed outside her home; school hours have been curtailed, and there is a serious lack of men-teachers in the boys' departments. The darkened streets, the lessened number of police, and the absence of social workers from boys' clubs, church brigades, and scout organisations, all have their widespread effect. To these must be added the influences of sensational cinema shows. In Germany similar war influences and conditions have produced a like result, but from France come no accounts of any important increase in juvenile offences. In some quarters the outbreak of misdoing is said to be the result of leniency in the children's courts and of the probation system, but the association states that the assertion is not borne out by experience. The association firmly believes that if the children are to be saved at this crisis it will be by an extended use of the system of reclamation through friendship, and not through an increased use of the birch and the reformatory. The association appeals to the public, and in particular to women of education and experience, to take up the task of befriending those boys who are rapidly graduating for citizenship. Let them offer themselves (*a*) to the justices of the children's courts as probation officers for one, two, or more children as their time permits; (*b*) for work in connexion with boys' clubs and

kindred organisations, many of which are in abeyance for lack of helpers; (c) as guides for educational visits to places of public interest, and in every personal way to counteract the lack of recreative occupation which has left the children more than ever open to the abnormal influences of the times. The address of the State Children's Association is 53, Victoria-street, London, S.W.

SYPHILIS IN THE NEGRO.

Dr. Walter G. Baetz contributes to the Proceedings of the Medical Association of the Isthmian Canal Zone (Vol. VII., Part I., Panama Canal Press, 1916) a valuable study of 500 consecutive cases of syphilis among coloured canal labourers. He says that a question frequently asked by medical men visiting the tropics is: "Do you see all of the diseases we have in the temperate zones, and, if so, do these diseases in the tropical climate and native run the usual course of their temperate prototypes?" Dr. Baetz has failed to find among 20,000 medical admissions to the Ancon Hospital of tropical male negroes a case of acute articular rheumatism, scarlet fever, or tabes dorsalis, and has observed only a single case of dementia paralytica in a negro of Indian type. On the other hand, certain syphilitic manifestations he finds much more frequent among tropical negroes than in Caucasians. The relative frequency of syphilitic manifestations expressed in percentages was as follows: adenopathy, 88; genital chancre or scar, 65; arthritis, periostitis, exostoses, 60; cerebro-spinal lesions, 35; skin lesions, 28; cardio-vascular lesions, 10; gummata and visceral infiltrations, 5. Dr. Baetz finds that in the implantation of the treponema pallidum in the aorta and aortic valves the negro pays a heavy toll. Over 31 per cent. of cases showed some febrile movement. "Tertiary" yaws he regards as a charitable diagnosis of tertiary syphilis. Prognosis as regards recovery is bad in this class of ignorant and careless patients. "The permanently disabled remain behind as inmates of the chronic ward until relieved by death, while the relieved ones will return to their habitations to perpetuate and increase the disease." Dr. Baetz concludes that the "negro will always remain a fertile supply depôt for venereal infections. The less he is cared for the more will he retaliate by increasing the supply."

A SUGGESTION FOR THE TREATMENT OF OBSTINATE HICCOUGH.

A PHILADELPHIA correspondent writes that when doing electrical work on a street car he received a shock of 550 volts, which passed from one arm through the chest and down to the other hand. His life was saved by being in series with five 16 c.p. lamps. During the passage of the current his chest muscles were tense and immovable. He suggests an imitation of this process in the treatment of intractable hiccough. The patient is to be firmly strapped to the operating table, a ring electrode fastened round the neck, the other terminal of 6 in. diameter applied to the abdomen, and a sufficient current passed for 10 seconds, a time which our correspondent thinks would suffice. The battery should have a range of voltage adjustable from 55 to 110, with 15 to 250 alternations per second. The skin effect may be avoided by rubbing in vaseline previously. He would be pleased to learn of any case where the method is tried.

A CORONER'S CLERK ON CERTIFICATION.

Dubitans makes the following communication: "A is in medical practice in a sparsely populated district. He has a patient aged 94 whom he has not been asked to see for six months. Her son comes for a bottle of medicine for her on a Saturday, stating that she is up and about as usual, but has difficulty in swallowing. A suggests that she should be seen by him, and the son promises, if the medicine does her no good, he shall see her. On that understanding the medicine is given. On the Monday the son returns, stating that his mother died on the Sunday without complaining of anything further. A tells him that, not having seen her for six months, he must get the coroner's consent to certify. The coroner gives a form to be signed by the neighbours and by A, after viewing the body, stating that an inquest is not necessary and that on the return of the form signed he will give a certificate. The head clerk of the coroner is alleged by the deceased's son to have told him that, as the patient was so old, A should have certified in spite of not having been asked to see her for six months. Deceased's family are indignant and blame A. Did A act correctly?"

The action of A was unquestionably correct and the head clerk was not justified in his statement. A could not in the public interest certify without inquiry, as he had not seen his patient for half a year. He rightly subordinated to a general and higher claim the feelings of a particular family. The coroner's head clerk appears not to have risen above a parochial view.

FRAMBŒSIA IN FIJI.

IN his annual medical report for 1914 to the Legislative Council of Fiji, Dr. A. A. Montague, acting chief medical officer, notes that the intentional infection of native children with framboesia is no longer universal. It is, however, probable that most Fijian children still contract the disease. It accounts for a large infantile death-rate, either directly or when complicated by dysentery or broncho-pneumonia. In its tertiary stage it is responsible for a large proportion of the serious disease occurring among Fijians. At the Colonial Hospital 31 cases of secondary framboesia and 205 of tertiary framboesia were treated during the year. To the provincial hospitals 1046 cases of the disease, mainly in its tertiary stage, were admitted out of a total of admissions from all causes of 3793. Dr. Montague adds that salvarsan continues to give admirable results in this disease, and the number of recorded relapses after its use is small.

TROMMER'S MALT EXTRACTS.

Messrs. F. Newbery and Son, Limited, of Charterhouse-square, London, E.C., ask to be allowed to point out, in response to recent inquiries, that the constitution of the Trommer Company is entirely British, that their malt extracts are of British manufacture, and that none of their share capital has at any time been held by alien enemies. These preparations have been referred to in our analytical columns.

BOOKS, ETC., RECEIVED.

COLLEGE OF PHYSICIANS, Philadelphia.
S. Weir Mitchell, M.D., LL.D., F.R.S., 1829–1914. Memorial Addresses and Resolutions.

FORBES AND COMPANY, Chicago.
Painless Childbirth: Eutocia and Nitrous Oxid-oxygen Analgesia. By Dr. Carl Henry Davis. Price $1.

HODGE, WILLIAM, AND CO., London.
Construction, Equipment, and Management of a General Hospital. By Donald J. Mackintosh, M.V.O., M.B., LL.D., F.R.S.E. Second edition. Price 15s. net.

KIMPTON, HENRY, London.
Essentials of Medical Electricity, by E. Reginald Morton, M.D., F.R.C.S. Third edition, revised and re-written, with addition of new matter, by Elkin P. Cumberbatch, M.A., M.B., Ch.B. Price 6s. net.

LIVINGSTONE, E. AND S., Edinburgh.
Wheeler's Handbook of Medicine. By W. R. Jack, B.Sc., M.D., F.R.F.P.S. Glasg. Fifth edition. Price 8s. net.

MACMILLAN AND CO., London.
Who is Insane? By Stephen Smith, A.M., M.D., LL.D. Price 5s. 6d. net.
The Treatment of Acute Infectious Diseases. By Frank Sherman Meara, M.D., Ph.D. Price 15s. net.
Keeping Physically Fit: Common-sense Exercises for the Whole Family. By William J. Cromie. Price 4s. 6d. net.

MASSON ET CIE., Paris.
Précis de Médecin Opératoire. Par Aug. Broca, Professeur d'Opérations et Appareils à la Faculté de Médecine de Paris. Price 9 fr.

MILFORD, HUMPHREY, London. COLUMBIAN UNIVERSITY PRESS, New York.
Harvey's Views on the Use of the Circulation of the Blood. By J. G. Curtis, M.D., LL.D. Price 6s. 6d. net.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Wednesday, March 22nd.

OPHTHALMOLOGY (Hon. Secretaries—Elmore W. Brewerton, Arthur W. Ormond): at 8.30 P.M.

Paper:

Colonel Lister, A.M.S., and Lieutenant-Colonel Gordon Holmes, R.A.M.C.: Disturbances of Vision from Cerebral Lesions with Special Reference to the Cortical Representation of the Macula.

NEUROLOGY.—Members of this Section are specially invited to attend the meeting of the Section of Ophthalmology (see above).

Friday, March 24th.

STUDY OF DISEASE IN CHILDREN (Hon. Secretaries—J. D. Rolleston, A. S. Blundell Bankart, Sidney Gilford): at 4.30 P.M.

Cases:

Dr. E. A. Cockayne: (1) Sclerodermia; (2) Paroxysmal Hæmoglobinuria.
Dr. E. B. Gunson: Gangrene of Leg following Diphtheria.
Dr. J. L. Bunch: A Papulo-necrotic Tuberculide.
Dr. H. Thursfield: Rickets: Multiple Fractures.
And other Cases.

Specimen:

Dr. J. D. Rolleston: Brain of "Mongolian" Imbecile.

Short Papers:

Dr. R. Hutchison: Report on a Case of Hemi-hypertrophy with Post-mortem Examination.
Dr. H. C. Cameron: Osteogenesis Imperfecta (Illustrated by cases and skiagrams).

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—8.30 P.M., Discussion on Gunshot Wounds of the Spine, introduced by Captain J. S. Collier (Medical Aspect) and Lieutenant-Colonel D. Armour (Surgical). Followed by Major F. W. Mott, Captain W. Harris, Dr. L. Guthrie, Captain E. Adams, Captain F. Buzzard, Major G. N. Pitt, Dr. S. A. K. Wilson, and Dr. E. G. Fearnsides.

LONDON DERMATOLOGICAL SOCIETY, St. John's Hospital 49, Leicester-square, W.C.

TUESDAY.—4.30 P.M., Cases sent for Consultation. Demonstration of Pathological Specimens. Exhibition of Clinical Cases. 5.30 P.M., Paper:—Dr. J. L. Bunch: Dermatitis due to Hair Dyes.

HUNTERIAN SOCIETY, 1, Wimpole street, W.

WEDNESDAY.—9 P.M., Annual Discussion:—The Relationship of the Medical Profession to the State and the Community (opened by Dr F. J. Smith). Sir John Collie, Dr. T. D. Lister, Mr. L. Dodd and others will take part in the discussion.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

Course of Lectures on the Anatomy of the Human Body, for First-aid and Ambulance Students (open to all members of ambulance companies and first-aid classes):—

MONDAY, WEDNESDAY, AND FRIDAY.—5.30 P.M., Prof. A. Keith. 4 P.M. to 7 P.M., Exhibition of Anatomical Preparations and Specimens in the Theatre on lecture days, and between 10 A.M. and 5 P.M. in the Hall of the Museum on the following day.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Gray: Operations. Mr. B. Harman: Diseases of the Eye. Dr. Simson: Diseases of Women.

TUESDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Addison: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women.

THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Gray: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Addison: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10.30 A.M., Surgical Out-patients (Mr. E. Gillespie). 2.30 P.M., Medical Out-patients (Dr. T. R. Whipham): Gynæcological Out-patients (Dr. Banister). 3 P.M., Medical In-patients (Dr. R. M. Leslie).

TUESDAY.—2.30 P.M., Surgical Operations (Mr. Carson). Clinics:—Medical Out-patients (Dr. A. G. Auld); Surgical Out-patients (Mr. Howell Evans); Nose, Throat, and Ear Out-patients (Mr. C. H. Hayton). Radiography (Dr. Metcalfe). 3.30 P.M., Medical In-patients (Dr. A. J. Whiting).

WEDNESDAY.—Clinics:—2.30 P.M., Throat Operations (Mr. C. H. Hayton). Children Out-patients (Dr. T. R. Whipham); Eye Out-patients (Mr. R. P. Brooks); Skin Out-patients (Dr. H. W. Barber). 5.30 P.M., Eye Operations (Mr. R. P. Brooks).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patients (Dr. A. J. Whiting); Surgical Out-patients (Mr. Carson); Radiography (Dr. Metcalfe). 3 P.M., Medical In-patients (Dr. R. M. Leslie).

FRIDAY.—2.30 P.M., Surgical Operations (Mr. Howell Evans). Clinics:—Medical Out-patients (Dr. A. G. Auld); Surgical Out-patients (Mr. E. Gillespie); Eye Out-patients (Mr. R. P. Brooks).

THE THROAT HOSPITAL, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.

THURSDAY.—5.15 P.M., Clinical Lecture.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.

THURSDAY.—3 P.M., Prof. H. E. Armstrong: Organic Chemistry in War—Organic Products used as Propulsive and Explosive Agents. (Lecture II.)

FRIDAY.—5.30 P.M., Prof. W. M. Bayliss: The Mechanism of Chemical Change in Living Organisms.

For further particulars of the above Lectures, &c., see Advertisement Pages.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, March 15th, 1916.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks
Mar. 9	29·910	N.E.	...	67	42	32	33	34	Overcast
,, 10	29·810	N.E.	...	44	37	34	34	36	Raining
,, 11	29·436	N.E.	0·09	39	38	35	36	36	Overcast
,, 12	29·330	N.	0·03	79	51	36	37	40	Overcast
,, 13	29·670	E.	...	57	43	36	39	39	Overcast
,, 14	29·702	E.	0·39	72	50	39	43	43	Overcast
,, 15	29·6:6	N.E.	...	53	49	39	40	40	Overcast

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MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. II. of 1915 were given in THE LANCET of Dec. 25th, 1915.

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